UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105-3901

May 14, 1992

ADDRESSEES
(see attached mailing list)

Dear Group:

Please find enclosed a signed copy of the Administrative Order on Consent for the Del Amo site. Accordingly, May 7, 1992 shall be the effective date of the Order.

Thank-you for your cooperation during the negotiation process.

Sincerely,

Thomas J. Dunkelman
Project Manager

Enclosure

cc: J. Cervera, EPA (RC-3)

ATTACHMENT B - SCHEDULE OF DELIVERABLES ADMINISTRATIVE ORDER ON CONSENT - DEL AMO PLANT SITE				
TASK	**STIPULATED PENALTY CLASS+**	**TRIGGER EVENT**	**DURATION FROM TRIGGER EVENT**	**CUMULATIVE TIME, POST ORDER**
Draft FFS Report	IV	EPA Comments Tech Memo Devel/Screening of Alts	2	21 (14)
Final FFS Report	III	EPA Comments	2	24 (17)
RISK ASSESSMENT (EPA)				
Data Quality Objectives Report		Order	0.5	0.5
Preliminary Remediation Goals Report		Order	1	1
Exposure Assumptions Report		Order	1.5	1.5
Chemicals of Concern Report		Validated Phase I Database	1	14
Data Gaps Report		Validated Phase I Database	1.5	14.5
Trial Excavation Risk Assessment (Optional)		**Draft Trial Excavation Evaluation Report**		
Draft Risk Assessment Report		Validated Phase II Database	2	27
Final Risk Assessment Report		EPA Comments	1	29
Final Cleanup Standards Report (Optional)				

\+ Stipulated penalty classes are defined in Section XXI of the Administrative Order on Consent.

* Performance of treatability studies during the RI/FS for the Del Amo Plant site is contingent upon recommendations in the Technical Memorandum on Identification and Screening of Technologies.

** Performance of these tasks is contingent upon successful results of In-Situ Phase I Treatability Studies.

*** Performance of these tasks is contingent upon feasibility of trial excavation as determined by the Trial Excavation Feasibility Study.

( ) Cumulative Time for submittal of deliverable if In-Situ Phase treatability studies are successful and the trial excavation is not practical.

Mailing List

Bill Duchie, Shell (w/enclosure)
Tom Kearns, Shell (w/enclosure)
Bill Witt, Dow (w/enclosure)
Sydney Rooks, Dow (w/enclosure)
Albert Cohen, Irell & Manella (w/enclosure)
Alice Gimeno, Cal EPA (w/enclosure)
Dennis Ragen, CA DOJ (w/enclosure)
Orchid Kwei, Cal EPA (w/enclosure)
Carol Fenner, Bechtel (w/enclosure)

1050-00065

Del Amo Facility

ACO1 5/7/92

Jeannie Cervera
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United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105

Attorney for EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

IN THE MATTER OF: Del Amo Plant Site Shell Oil Company The Dow Chemical Company RESPONDENTS Proceeding Under Sections 104, 122(a) and 122(d)(3) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. §§ 9604, 9622(a), 9622(d)(3) as amended by the Superfund Amendments and Reauthorization Act of 1986.	U.S. EPA Docket No. 92-13

ADMINISTRATIVE ORDER ON CONSENT FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY AND FOCUSED FEASIBILITY STUDY

TABLE OF CONTENTS

I. INTRODUCTION

A. This Administrative Order on Consent (Consent Order) is entered into voluntarily by the United States Environmental Protection Agency (EPA), the California Department of Toxic Substances Control ("DTSC"), and the Respondents (Shell Oil Company and the Dow Chemical Company). The Consent Order concerns the preparation of, performance of, and reimbursement for costs incurred by EPA and DTSC in connection with a remedial investigation and feasibility study (RI/FS) for the Del Amo Facility Site located in Los Angeles, California, as well as reimbursement of past response costs.

II. JURISDICTION

A. This Consent Order is issued under the authority vested in the President of the United States by Sections 104, 122(a) and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9622(a), 9622(d)(3) (CERCLA). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2923 (1987), and further delegated to Regional Administrators on September 13, 1987, by EPA Delegation Nos. 14-8-A and 14-14-C. This authority has been redelegated by the Regional Administrator to the Director, Hazardous Waste Management Division, U.S. EPA, Region 9. DTSC is the successor in interest to the Toxic Substances Control Program of the California Department of Health Services. DTSC has jurisdiction over the matters set forth herein pursuant to California Health & Safety Code § 25300 et seq. and § 121(f) of CERCLA, 42 U.S.C. §9621(f).

B. The Respondents agree to undertake all actions required by the terms and conditions of this Consent Order. In any action by EPA or the United States to enforce the terms of this Consent Order, Respondents consent to and agree not to contest the authority or jurisdiction of the Regional Administrator to issue or enforce this Consent Order, and agree not to contest the validity of this Consent Order.

III. PARTIES BOUND

A. This Consent Order shall apply to and be binding upon EPA, DTSC the Respondents, their successors, and assigns. Respondents are jointly and severally responsible for carrying out all actions required by this Consent Order. The signatories to this Consent Order certify that they are authorized to execute and legally bind the parties they represent to this Consent Order. No change in the ownership or corporate status of the Respondents or of the facility or site shall alter Respondents' responsibilities under this Consent Order.

B. The Respondents shall provide a copy of this Consent Order to any subsequent owners or successors before ownership rights or stock or assets in a corporate acquisition are transferred. Respondents shall provide a copy of this Consent Order to all contractors and subcontractors ("contractors") that are retained to conduct any work performed under this Consent Order, within 14 days after the effective date of this Consent Order or the date of retaining their services, whichever is later. Respondents shall require that any work being performed by any contractors or subcontractors pursuant to this Consent Order be performed in a manner consistent with the terms of the Consent Order.

IV. STATEMENT OF PURPOSE

In entering into this Consent Order, the mutual objectives of EPA, DTSC, and Respondents are:

A. To conduct the Remedial Investigation ("RI"), for the 300-acre Del Amo Site ("Plant Site"), as described in the Statement of Work ("SOW"), a copy of which is attached as Attachment A and by this reference made a part of this Consent Order, in order to determine the nature and extent of contamination and the potential for harm to the public health or welfare or the environment caused by the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Del Amo Plant Site, as defined in Section V below. The SOW specifies work to be performed during the RI. It

also includes a list of reports, documents, and other deliverables that the Respondents will provide for EPA review, comment and/or approval.

B. To conduct the Feasibility Study ("FS") for the Del Amo Plant Site, as described in the SOW, which evaluates remedial action alternatives to prevent and eliminate the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Del Amo Plant Site.

C. To conduct a Focused Feasibility Study for the 3.7-acre Del Amo pit site, as described in the SOW, which evaluates remedial action alternatives to prevent and eliminate the release or threatened release of hazardous substances, pollutants, or contaminants at or from the 3.7-acre Del Amo pit site, as defined in Section V below.

D. To undertake all actions required by the terms and conditions of this Consent Order in accordance with the provisions of CERCLA and the National Contingency Plan ("NCP"), 40 C.F.R. Part 300 et seq., as amended. Activities conducted in compliance with this Consent Order shall be deemed in compliance with the NCP.

E.This Consent Order does not require Respondents to implement the remedial alternative chosen by EPA, in the Record Of Decision ("ROD"), for the site.

V. FINDINGS OF FACT

A. On July 29, 1991, EPA proposed the Del Amo Superfund Site for the National Priorities List ("NPL")(56 Fed. Reg. No. 145), as defined by CERCLA (42 U.S.C §9605). EPA policy prescribes that the "listing process is not intended to define or reflect boundaries of such facilities or releases" (56 Fed. Reg. 35843). Accordingly, the proposed listing did not include any precise geographical boundaries for the Del Amo Plant Site. The extent of the Del Amo Plant Site will be refined as more information is developed during the RI/FS and during implementation of the remedy.

B. The Del Amo Remedial Investigation/Feasibility Study ("RI/FS") area shall include, at a minimum, the approximately 278 acres which comprised a former synthetic rubber manufacturing facility which generally occupied an area between 190th Ave. on the North, Vermont Ave. on the East, Knox Street on the North, Hamilton Ave. on the East,

and Del Amo Blvd. on the South. The western boundary of the facility is approximately 500 feet east of Normandie Ave. (see Figure 1). This approximately 278 acre area is referred to herein as the "Plant Site". Collectively, the RI/FS area or the Plant Site shall be referred to as the "Plant Site RI/FS area". The fact that a particular location is the subject of the Plant Site RI/FS does not mean that a release or threatened release has occurred on that portion of the Plant Site.

C. The "Del Amo Pit Site" is approximately 3.7 acres in size and is contained within Lot 36 of the Plant Site RI/FS area (Los Angeles County Assessors Map #7531-34 Northwest). It is identical to the Del Amo Site which was the subject of a Consent Order entered into between the State of California Department of Health Services, GP Holdings Inc., The Dow Chemical Company and Shell Oil Company dated March 18, 1988 and to the site which is the subject of litigation encaptioned Cadillac Fairview/California, Inc. v. The Dow Chemical Co. et al., United States District Court, Central District of California, Docket No. 83-7996.

D. The NCP defines "on-site" as the areal extent of contamination and all suitable areas in close proximity to the contamination necessary for implementation of the response action (NCP §300.400(e)(1)). As a result, the site boundaries may change during the RI/FS process, as the areal extent of contamination is better defined.

E. In 1942, the Defense Plant Corporation (DPC), which was created under the authority of the Reconstruction Finance Corporation (RFC), acquired title to a parcel of undeveloped land for the construction of three related plants which would comprise the synthetic rubber manufacturing facility. The RFC had been authorized to create a corporation to produce synthetic rubber for the United States by the RFC Act, as amended on June 25, 1940. The authority to own, operate, administer, and inspect the operations of the Government-owned facilities was re-authorized to the RFC in 1942 under the Second War Powers Act of 1942. The three related plants, which were constructed in 1942, consisted of a butadiene plant, a styrene plant, and a copolymer plant where butadiene and styrene were mixed to produce synthetic rubber.

F. From 1942 to 1955, the three plants were owned by the U.S. Government and operated under Agreements to Lease by the following companies:

- From 1942 to 1955, Shell Chemical Corporation (Shell) operated the butadiene plant;
- From 1942 to 1955, The Dow Chemical Company (Dow) operated the styrene plant;
- From 1942 to 1949, Goodyear Tire Company of California, and its subsidiary Goodyear Synthetic Rubber Corporation, operated a portion of the copolymer plant;
- From 1950 to 1955, Midland Rubber Company (Midland) a subsidiary of Minnesota Mining & Manufacturing Company, operated the copolymer plant.

G. In 1954, the Federal Facilities Corporation (FFC) replaced the Reconstruction Finance Corporation in the oversight of the Government's synthetic rubber facilities. In 1955, the U.S. Government sold the synthetic rubber facility to Shell Chemical Corporation. This sale occurred under the Rubber Producing Facilities Act of 1953, through the Rubber Producing Facilities Disposal Commission. The General Services Administration (GSA) is the successor in interest to the RFC, DPC, FFC, and the Rubber Producing Facilities Disposal Commission.

H. Shell operated the synthetic rubber manufacturing facility from 1955 through about 1969 at which time rubber manufacturing activities at the facility ceased.

I. During the period in which the Site was used for the production of synthetic rubber (1942 through 1969), operations were conducted in a relatively consistent manner. Raw materials were received via surface transport and underground pipelines, with above and underground tanks being used for the storage of raw materials and finished products. Each plant was equipped with its own wastewater disposal system, which included the use of unlined surface impoundments. Other waste disposal impoundments included three evaporation ponds (referred to as Pits 1A-C) and six sumps (referred to as Pits 2A-F)(see Figure 1).

J. In 1972, Shell sold the entire facility to Cabot, Cabot & Forbes (CC&F), a land development company. CC&F began the dismantling of the facility and the commercial development of the property, including the sale of portions of the former facility. In March of 1976, CC&F entered into a partnership with Cadillac Fairview/California, Inc. (Cadillac Fairview) for the continued commercial development of the remainder of the property. In October of 1976, this partnership was terminated and Cadillac Fairview acquired the balance of the partnership interest in the remaining unsold property at the Site.

K. The majority of the Site has since been commercially developed and sold to various entities. In 1981, Cadillac Fairview sold Lots 12 and 13 to WRH Industries, Inc. ("WRH"). In 1983, Cadillac Fairview sold Lot 37 (including Pit IA) to WRH. WRH has conducted clean-up actions at Pit 1A, including excavation of waste material. G.P. Holdings, Inc., successor in interest to Cadillac Fairview (hereinafter Cadillac Fairview and G.P Holdings are collectively referred to as G.P.Holdings), retains title to Lot 36.

L. In 1985, G.P. Holdings, Dow and Shell entered into a Memorandum of Agreement (MOA) with the State of California. Pursuant to the MOA, contractors for the State of California, Department of Health Services conducted studies to determine the nature and extent of contamination at the waste disposal pit area at the southern end of the Site. This study area consisted of Lot 36, which is approximately 3.7-acres in size (hereinafter the "Del Amo pit site"). The Del Amo pit site is located entirely within the Del Amo Plant Site.

M. On March 18, 1988, G.P. Holdings, Dow, and Shell signed an Administrative Order with the State of California (Index # 87/88-041), under which the previous studies would be incorporated into an RI/FS. The Respondents to the State Order completed a Final Remedial Investigation Report and a Draft Feasibility Study Report for the Del Amo pit site. On October 18, 1991, DTSC issued a Notice of Non Compliance to the Respondents to the State Order by which that Order was terminated. Respondents reserved the right to respond to certain matters raised in the Notice of Non Compliance.

N. The 1984 and 1985 studies conducted on the Del Amo pit site involved drilling into and adjacent to the waste pits and installing eight groundwater wells into a shallow aquifer beneath the Site. Three of the wells were located within the boundaries of the Plant Site, while the remaining wells were located off the Site. Soil and waste samples were analyzed for metals and organic chemicals.

O. The analytical results indicated high concentrations of benzene, ethylbenzene, toluene, styrene, xylene, and polynuclear aromatic (PNA) hydrocarbons in soil and waste. Based on the soil sampling results, the Respondents to the State Order estimated that approximately 20,000 cubic yards of contaminated soil and waste exist within the boundaries of the former waste pits. Samples of groundwater collected from monitoring wells showed high concentrations of benzene, toluene, ethylbenzene, phenols, and PNAs in wells up-gradient and down-gradient from the pits. One monitoring well located down-gradient from the site, contained a significant thickness of floating hydrocarbon product.

P. As part of an ongoing site investigation, directed by EPA at the neighboring Montrose Chemical Company Superfund Site to the west, Montrose Chemical Company of California installed additional groundwater monitoring wells on the 300-acre Del Amo Site. One of the wells contained 1.5 feet of floating benzene product. Other wells in the area showed high concentrations of benzene. The styrene plant operated by Dow received benzene through pipelines from an off-site facility located in Dominguez, California owned by Shell Chemical Company.

Q. In 1988, EPA's Field Investigation Team (FIT) conducted an Expanded Site Investigation (ESI) for the Plant Site. Based upon previous studies, FIT determined that the groundwater pathway is the most likely pathway to pose a substantial threat to human health and the environment. Therefore, the EPA ESI study focused on obtaining data necessary to evaluate the Site, focusing primarily on the groundwater pathway.

R. FIT installed two monitor well clusters near the site. From the data obtained from these wells, EPA has concluded that, within two miles of the site, there is hydraulic

continuity between the uppermost, contaminated aquifer beneath the site and the local, deeper aquifer which is a potential source of drinking water.

S. Past studies indicate subsurface migration of waste constituents into the soils beyond the waste pit boundaries and potentially into the shallow groundwater aquifer beneath the Site. Potential pathways for exposure include the release of volatile organic chemicals during soil disturbance, migration of volatile organic vapors through subsurface soils and migration of contaminants from the shallow aquifer into the deeper aquifer.

T. There is also the potential for hazardous substances to migrate and contaminate the deeper drinking water aquifer located directly below the Site.

U. The principal chemical substances of concern include, but are not limited to, benzene, ethylbenzene, toluene, xylene, styrene, and polynuclear aromatic (PNA) hydrocarbons. Many of these compounds are volatile and/or soluble. Contamination has been detected at a depth of at least 65 feet in some areas, and the contaminants are mobile in soil.

V. Groundwater samples indicate benzene concentrations as high as 750,000 (parts per billion) ppb in the shallow aquifer underlying the Site. Soil cores collected on-site indicate benzene concentrations as high as 66,000,000 ppb. EPA has established a Maximum Contaminant Level (MCL) of 5 ppb of benzene in drinking water.

W. Groundwater and soil core samples indicate ethylbenzene concentrations as high as 4,000,000 ppb and 50,000,000 ppb respectively. EPA has established an MCL of 700 ppb for ethylbenzene in drinking water.

X. Groundwater samples indicate toluene concentrations as high as 2,600 ppb in the shallow aquifer underlying the Site. Soil cores indicate toluene concentrations as high as 940 ppm. EPA has established an MCL of 1,000 ppb for toluene in drinking water.

Y. Soil cores collected from the site indicate xylene concentrations as high as 8,500,000 ppb.

Z. Groundwater and soil samples indicate the presence of naphthalene, phenanthrene, and acenapthalene, and methylphenanthrene, which belong to a class of chemical compounds known as polynuclear aromatic hydrocarbons (PNAs).

VI. CONCLUSIONS OF LAW

A. The Site is a "facility" as defined in Section 101 (9) of CERCLA, 42 U.S.C. § 9601 (9).

B. Respondents are "persons" as defined in Section 101 (21) of CERCLA, 42 U.S.C. § 9601 (21).

C. The chemicals and their constituents at the Site are "hazardous substances" as defined in Section 101 (14) of CERCLA, 42 U.S.C. § 9601 (14).

D. The past, present, and potential migration of hazardous substances from the Site constitutes an actual or threatened "release" as defined in Section 101 (22) of CERCLA, 42 U.S.C. § 9601 (22).

E. Respondents are potentially responsible parties pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

VII. DETERMINATIONS

A. Hazardous substances have been released into the environment at or from the Site. There is a substantial threat that hazardous substance will be released into the environment at or from the Site.

B. The actions required by this Consent Order are necessary to protect the public health, welfare and the environment.

VIII. LEAD AGENCY NOTICE

As a signatory to this Consent Order, the California Department of Toxic Substances Control is notified and agrees that EPA is the lead agency for coordinating, overseeing, and enforcing the response action required by the Consent Order.

IX. WORK TO BE PERFORMED

The work to be performed under this Consent Order consists of two distinct projects that are to be performed concurrently. The first project includes the performance of an

RI/FS for the Del Amo Plant Site. The second project includes the completion of a Focused Feasibility Study for the Del Amo pit site. The specific tasks and deliverables required for these two projects are described in the attached Statement of Work.

All work performed under this Consent Order shall be under the direction and supervision of a qualified professional engineer or a certified geologist with expertise in hazardous substance site investigation. Within 30 days of the effective date of this Consent Order, and before the work outlined below begins, the Respondents shall notify EPA in writing of the names, titles, and qualifications of such engineer or geologist to be used in carrying out such work. The qualifications of the persons undertaking the work for Respondents shall be subject to EPA's review for verification that such persons meet minimum technical background and experience requirements. Such background and experience shall be deemed sufficient if the persons undertaking the work have satisfactorily performed similar work at an NPL Site within the last 12 months. This Consent Order is contingent on Respondents' demonstration to EPA's satisfaction that Respondents are qualified to perform properly and timely the actions set forth in this Consent Order.

If EPA disapproves in writing of any person(s)' technical qualifications, Respondents shall notify EPA of the identity and qualifications of the replacement(s) within 30 days of the written notice. EPA will inform Respondents of its approval or disapproval of such replacement within 15 days after receipt of such notice. If EPA subsequently disapproves of the replacement(s), EPA reserves the right to terminate this Consent Order and to conduct a complete RI/FS or Focused Feasibility Study, and to seek reimbursement for costs and penalties from Respondents. During the RI/FS and Focused Feasibility Study, Respondents shall notify EPA in writing of any changes in the designated engineer or geologist used to carry out such work, providing their names, titles, and qualifications. EPA shall have the same right to approve changes to such personnel as it has hereunder regarding the initial notification.

Respondents shall conduct activities and submit deliverables as provided by the attached Statement of Work for the development of the RI/FS and the Focused Feasibility

Study. All such work shall be conducted in accordance with CERCLA, the NCP, and EPA guidance including, but not limited to, the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive # 9355.3-01), "Guidance for Data Useability in Risk Assessment" (OSWER Directive #9285.7-05) and guidance referenced therein, and guidance referenced in the Statement of Work, as may be amended or modified by EPA.

The activities and deliverables identified in the Statement Of Work shall be submitted to EPA as provided. All work performed under this Consent Order shall be according to the schedule (Attachment B) in the Statement Of Work (Attachment A), and in full accordance with the standards, specifications, and other requirements of the work plan and sampling and analysis plan, as initially approved or modified by EPA, and as may be amended or modified by EPA from time to time. The Statement Of Work and all other attachments to this Order are deemed part of this Consent Order and are binding on all parties. For the purpose of this Consent Order, the periods of time shall be calculated as calendar days, excepting federal holidays. However, when the period of time prescribed or allowed is less than 11 days, intermediate Sundays and legal holidays shall be extended in the computation in accordance with Rule 6 (a) of the Federal Rules of Civil Procedure.

EPA reserves the right to comment on, modify and direct changes for all deliverables. In the event that Respondents amend or revise a report, plan or other submittal upon receipt of EPA comments, if EPA subsequently disapproves of the revised submittal, or if subsequent submittals do not fully reflect EPA's directions for changes, EPA retains the right to seek stipulated or statutory penalties; perform its own studies, complete the RI/FS (or any portion of the RI/FS) under CERCLA and the NCP, and seek reimbursement from the Respondents for its costs; and/or seek any other appropriate relief. In the event that EPA fails or refuses to approve a deliverable required by this Consent Order, Respondents reserve the right to submit the modified deliverable under protest, noting, where appropriate the areas of disagreement . EPA or Respondents may begin Dispute Resolution (Section

XX) procedures, if appropriate, after EPA's disapproval of a revised or amended deliverable.

In the event that EPA takes over some of the tasks, but not the preparation of the RI/FS, Respondents shall incorporate and integrate information supplied by EPA into the final RI/FS report, subject to Respondents' reservation of rights.

Neither failure of EPA to expressly approve or disapprove of Respondents' submissions within a specified time period(s), nor the absence of comments, shall be construed as approval by EPA. Whether or not EPA gives express approval for Respondents' deliverables, Respondents are responsible for preparing a deliverable in compliance with this Consent Order to EPA.

Respondents shall, prior to any off-site shipment of hazardous substances from the site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's Designated Project Coordinator of such shipment of hazardous substances.

(a) The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondent(s) shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

(b) Respondent(s) shall provide all relevant information, including information under the categories noted in paragraph 31(a) above, on the off-site shipments, as soon as practical after the award of the contract and before the hazardous substances are actually shipped.

X. EPA'S BASELINE RISK ASSESSMENT

EPA will perform the baseline risk assessment. Respondents shall support EPA in the effort by providing various information to EPA as outlined above. The major

components of the Baseline Risk Assessment include contaminant identification, exposure assessment, toxicity assessment, and human health and ecological risk characterization.

EPA will provide, after review of the Respondents' site characterization summary, sufficient information concerning the baseline risks such that the Respondents can begin drafting the Feasibility Study report. This information will generally be in the form of two or more baseline risk assessment memoranda prepared by EPA. One memorandum will generally include a list of the chemicals of concern for human health and ecological effects and the corresponding toxicity values. Another should list the current and potential future exposure scenarios, exposure assumptions, and exposure point concentrations that EPA plans to use in the baseline risk assessment. The EPA agrees to provide Respondents with copies of these memoranda and agrees further that the Respondents may submit comments regarding these memoranda within thirty (30) days following Respondents' receipt of such documents. EPA will also provide Respondents with a copy of the Human Health and Ecological Risk Assessment. The public, including the Respondents, may also comment on this memoranda. However, the Agency is obligated to respond only to significant comments that are submitted during the formal public comment period.

After considering any significant comments received, EPA will prepare a baseline risk assessment report based on the data collected by the respondents during the site characterization. EPA will release this report to the public at the same time it releases the final RI report. Both reports will be put into the administrative record for the site.

EPA will respond to all significant comments on the memoranda or the baseline risk assessment that are resubmitted during the formal comment period in the Responsiveness Summary of the Record of Decision.

This Section is not subject to Dispute Resolution (Section XX).

XI. MODIFICATION OF THE STATEMENT OF WORK

If at any time during the RI/FS and Focused FS process, Respondents identify a need for additional data to complete the objectives of the RI/FS or Focused FS process, a memorandum documenting the need for additional data shall be submitted to the EPA

Project Coordinator within 20 days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondents and whether it will be incorporated into reports and deliverables. Respondents shall have the right to gather any additional data not specified or required under this Consent Order, except as limited by Section 122(e)(6) of CERCLA. Interpretations regarding the meaning of Section 122(e)(6) of CERCLA shall not be subject to dispute resolution.

Respondents may request an extension of time to complete any deliverable by filing with EPA a written request for an extension of time. Any request for an extension provided for in this paragraph shall be submitted to EPA within two (2) working days of the event which may justify a need for an extension of time. A request for an extension of time shall be in writing and indicate the new date on which Respondents will submit the deliverable to the EPA. A request for an extension must be a force majeure event as defined in this Consent Order. EPA's approval or disapproval of a request for an extension of time is subject to the Dispute Resolution provision if requested by either party.

In the event of conditions posing an immediate threat to human health or welfare or the environment, Respondents shall notify EPA immediately upon discovery. In the event of unanticipated circumstances at the site, Respondents shall notify the EPA Project Coordinator by telephone within 48 hours of discovery of the unanticipated circumstances. In addition to the authorities in the NCP, in the event that EPA determines that the immediate threat or unanticipated circumstances warrant changes in the work plan, EPA shall modify or amend the work plan in writing accordingly. Respondent(s) shall perform the work plan as modified or amended.

EPA may determine that in addition to tasks defined in the initially approved work plan, other additional work may be necessary to accomplish the objectives of the RI/FS and Focused FS as set forth in the Statement of Work. Respondents agree to perform these tasks in addition to those required by the initially approved work plans (identified in the Statment Of Work), including any approved modifications, if EPA determines that such actions are necessary for a complete RI/FS. The additional work shall be completed

according to the standards, specifications, and schedule set forth or approved by EPA in a written modification to the work plans or written work plan supplements.

EPA reserves the right to conduct the work itself at any point, to seek reimbursement from Respondents, and/or to seek any other appropriate relief. Respondents reserve all rights including the right to seek dispute resolution on the need for and scope of any additional tasks; or seek any other appropriate relief as provided or reserved u nder this Consent Order.

XII. QUALITY ASSURANCE

Respondents shall assure that work performed, samples taken and analyses conducted conform to the requirements of the Statement of Work, the Quality Assurance Project Plan (QAPP) and guidance identified therein. Respondents will assure that field personnel used by Respondents are properly trained in the use of field equipment and in chain of custody procedures.

XIII. FINAL RI/FS, FOCUSED FS, PROPOSED PLAN, PUBLIC COMMENT, RECORD OF DECISION, ADMINISTRATIVE RECORD

EPA retains the responsibility for the release to the public of the RI/FS report and Focused FS report. EPA retains responsibility for the preparation and release to the public of the proposed plan and record of decision in accordance with CERCLA and the NCP.

Pursuant to Section 113(k) of CERCLA, EPA will establish the contents of the administrative record file for selection of the remedial action. Respondents must submit to EPA documents developed during the course of the RI/FS upon which selection of the response action may be based. Respondents shall provide copies of plans, task memoranda including documentation of field modifications, recommendations for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports, and other relevant documents. Respondents must additionally submit any previous studies conducted under state, local or other federal authorities relating to selection of the response action, and all communications between Respondents and state, local or other federal authorities concerning selection of the response action. At EPA's discretion, Respondents

shall establish a community information repository at or near the Site, to house one copy of the administrative record.

XIV. PROGRESS REPORTS AND MEETINGS

Respondents or their designated representatives will participate in meetings at the request of EPA during the initiation, conduct, and completion of the RI/FS and Focused FS. In addition to discussion of the technical aspects of the RI/FS, topics will include anticipated problems or new issues. Meetings will be scheduled at EPA's discretion, with reasonable notice to DTSC and Respondents. Meetings may be held via tele-conference as appropriate.

In addition to the deliverables set forth in this Consent Order, Respondents shall provide to EPA quarterly progress reports by the 10th day of the first month of the calander quarter.

XV. SITE ACCESS

A. To the extent that, as of the date of the effective date of this Consent Order, Respondents require access to land other than land they own, Respondents shall use their best efforts to obtain access agreements from the present owners or lessees within 90-days of the effective date of this Consent Order. If the need for access should arise after the effective date of this Consent Order, the Respondents shall use their best efforts to obtain access within 90-days of the need for access arising. Such agreements shall provide reasonable access for EPA, its contractors and oversight officials, the state and its contractors, and Respondents or their authorized representatives. In the event that Respondents are not able to obtain site access to property owned or controlled by persons or entities other than Respondents, Respondents shall notify EPA promptly regarding both the lack of, and efforts made to obtain, such access.

Provided Respondents demonstrate that they used their best efforts to attempt to negotiate access agreements, EPA will make reasonable efforts to obtain access to the Site or off-site property or properties. Best efforts by Respondents shall include payment of reasonable consideration. EPA may obtain access for the Respondents, perform those tasks

or activities with EPA contractors, or terminate the Consent Order in the event that Respondents cannot obtain access agreements.

In the event that EPA performs those tasks or activities with EPA contractors and does not terminate the Consent Order, Respondents shall perform all other activities not requiring access to that site, and shall reimburse EPA for all costs not inconsistent with the NCP incurred in performing such activities. Respondents additionally shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. Furthermore, the Respondents agree to indemnify the U.S. Government as specified under this Consent Order. Respondents also shall reimburse EPA for all costs and attorney fees incurred by the United States not inconsistent with the NCP to obtain access for the Respondents.

B. Respondents agree that no conveyance of title, easement, or other interest in the property comprising the Site shall be consummated without a provision permitting the continuous implementation of the provisions of this Consent Order.

C. Respondents shall permit EPA, or its authorized representatives, to have reasonable access at all times to the Site to monitor any activity conducted pursuant to the Statement of Work or conduct such tests or investigations as EPA deems necessary. Nothing in this Consent Order shall be deemed a limit upon EPA's authority under CERCLA or other applicable federal law to gain access to the Site. EPA will endeavor to provide reasonable prior notice for all routine site inspections. Respondents may accompany any EPA employee or representative at the Site during routine inspections.

XVI. SAMPLING, ACCESS, AND DATA/DOCUMENT AVAILABILITY

A. Respondents shall provide EPA with all results of sampling, testing, modeling, or other data generated by Respondents, or on Respondents behalf, in implementing this Consent Order, and all other analytical data regarding hazardous substance contamination at, or released from, the Plant RI/FS study area, as provided for in or pursuant to § 104(e) of CERCLA, 42 U.S.C. § 9604(e), including:

1. The results and Quality Assurance/Quality Control (QA/QC) documentation of all sampling and/or tests or other technical data generated by Respondents or on

Respondents' behalf with regard to soil, groundwater, surface water, or air contamination by hazardous substances, pollutants, or contamination at the RI/FS Study area.

2. Previous studies or reports in the Respondents' possession;

3. Communications between Respondents and local, state or other federal authorities;

4. Permits from local, state or federal authorities regarding hazardous substance use or contamination at the RI/FS Study Area.

B. At the request of EPA, Respondents shall provide split or duplicate samples to EPA and/or its authorized representatives of any samples collected by Respondents as part of the RI/FS Work Plan. Respondents shall notify EPA of any planned sample collection activity in the preceding quarterly report. EPA will make available to the Respondents validated data generated, or collected, by EPA unless it is exempt from disclosure by any federal or state law or regulation.

C. Respondents shall use quality assurance, quality control, and chain of custody procedures described in the "EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-7B-001-R and "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," December 1980, QAMS-005/80, and company EPA updates or revisions to these guidelines, while conducting all sample collection and analysis activities required by the Consent Order. Respondents shall consult with EPA in planning for, and prior to, all sampling and analysis as detailed in the RI/FS Statement of Work. To provide quality assurance and maintain quality control, Respondents shall:

1. Use a laboratory which has a documented Quality Assurance Program that complies with EPA guidance document QAMS-005/80.

2. Ensure that EPA personnel and/or EPA authorized representatives are allowed access to the laboratory and personnel utilized by Respondents for analysis.

3. Ensure that the laboratory used by Respondents for analyses uses methods deemed satisfactory to EPA and submits all protocols to be used for analyses to EPA at least 10 days before beginning analyses.

D. Respondents shall permit EPA and its authorized representative to have reasonable access at all times to the Site to monitor any activity conducted pursuant to the Statement of Work or conduct such tests or investigations as EPA deems necessary.

E. Respondents shall permit EPA and/or its authorized representative to inspect and copy all records, documents, and other writings, including all sampling and monitoring data, that in any way concern soil, groundwater, surface water or air contamination at the Site. Nothing in this Consent Order shall be interpreted as limiting EPA's inspection authority under federal law.

F. Respondents may assert a confidentiality claim, covering part or all of the information requested by this Consent Order pursuant to 40 CFR 2.203(b). Analytical data and data covered by Section 104(e)(7)(F) of CERCLA (42 U.S.C. § 9604(e)(7)(F)) shall not be claimed as confidential by Respondents and shall be provided to EPA by Respondents. Information determined to be confidential by EPA will be afforded the protection specified in 40 CFR Part 2, Subpart B. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to Respondents.

G. All data, factual information, and documents submitted by Respondents to EPA pursuant to this Consent Order shall be subject to public inspection.

H. Nothing herein shall be interpreted as limiting or affecting the Respondent's right to preserve the confidentiality of attorney work product or attorney/client communication.

XVII. DESIGNATED PROJECT COORDINATORS

Documents including reports, approvals, disapprovals, and other correspondence which must be submitted under this Consent Order, shall be sent by certified mail, return

receipt requested, to the following addressees or to any other addressees which the Respondents, EPA and DTSC designate in writing:

(a) Documents to be submitted to EPA should be sent to [2 copies or more if requested]:

Tom Dunkelman, EPA Project Coordinator, (H-7-1)
U.S. EPA, Region 9
75 Hawthorne St.
San Francisco, CA 94105

One copy of all documents submitted to EPA should also be sent to:

Alice Gimeno, Project Coordinator
California Department of Toxic Substances Control
245 West Broadway, Suite 350
Long Beach, CA 90802

(b) One copy of each document to be submitted to the Respondents should be sent to each of the following:

W.J. Duchie
Shell Oil Company
511 N. Brookhurst St.
Anaheim, CA 92803

Bill Witt
CERCLA Operations
Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674

John Dudley
Dames & Moore
175 Cremona Drive, Suite A
Goleta, CA 93117

Mr. Dunkelman shall be the designated EPA Project Coordinator, while Mr. W.J. Duchie shall be the designated Project Coordinator for the Respondents. Mr. Dunkelman's phone number is (415) 744-2395, and Mr. W.J. Duchie's phone number is (714) 520-3462. Each Project Coordinator shall be responsible for overseeing the implementation of this Consent Order. To the maximum extent possible, communications between the Respondents and EPA shall be directed to the Project Coordinator by mail, with copies to such other persons as EPA, the State, and Respondents may respectively designate. Communications include, but are not limited to, all documents, reports, approvals, and other correspon-

dence submitted under this Consent Order. EPA, DTSC, and the Respondents each have the right to change their respective Project Coordinator. The other parties must be notified in writing at least 10 days prior to the change.

EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager (RPM) and On-Scene Coordinator (OSC) by the NCP. In addition, EPA's Project Coordinator shall have the authority consistent with the National Contingency Plan, to halt any work required by this Consent Order, and to take any necessary response action when he or she determines that conditions at the site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the area under study pursuant to this Consent Order shall not be cause for the stoppage or delay of work.

EPA shall arrange for a qualified person to assist in its oversight and review of the conduct of the RI/FS and Focused FS, as required by Section 104(a) of CERCLA, 42 U.S.C. §9604(a). The oversight assistant may observe work and make inquiries in the absence of EPA, but is not authorized to modify the work plan.

XVIII. OTHER APPLICABLE LAWS

Respondents shall undertake all actions required by this Consent Order in accordance with the requirements of all applicable local, state, and federal laws and regulations unless an exemption from such requirements is specifically provided in this Consent Order.

XIX. RECORD PRESERVATION

All records and documents in EPA's and Respondent's possession generated in performance of this Consent Order shall be preserved during the conduct of this Consent Order and for a minimum of 6 years after commencement of construction of any remedial action. The Respondents shall acquire and retain one copy of all documents generated in performance of this Consent Order and which are in the possession of its employees, agents, accountants, contractors, or attorneys. After this 6 year period, the Respondents shall notify EPA at least 90 days before the documents are scheduled to be destroyed. If EPA requests

that the documents be saved, the Respondents shall, at no cost to EPA, provide EPA with documents or copies of the documents. Respondents may assert a confidentiality claim, covering part or all of the documents requested by EPA pursuant to 40 C.F.R. §2.203(b)

Nothing herein shall be interpreted as limiting or effecting Respondents' right to preserve the confidentiality of attorney work product or attorney client communication.

XX. DISPUTE RESOLUTION

Unless otherwise prohibited, any disputes concerning activities or deliverables required under this Consent Order shall be resolved as follows: Any party may invoke this Dispute Resolution. All Parties to this Consent Order shall make reasonable efforts to informally resolve disputes at the Project Coordinator level. If resolution cannot be achieved informally, the procedures of this section shall be implemented to resolve the dispute.

A. Any Project Coordinator who determines that a dispute cannot be resolved informally shall provide a written notice to the other Project Coordinator(s) which sets forth:

1) his/her understanding as to the nature of the dispute;

2) his/her understanding as to the position of the other Project Coordinator(s) with regard to the dispute;

3) his/her position with regard to the dispute;

4) the basis for concluding that his/her position on the dispute should be followed rather than the positions of the other Project Coordinator(s).

B. Within 7 days of receipt of any notice of dispute, the other Project Coordinator(s) shall advise each other in writing as to whether they agree or disagree with the specific statements provided in the notice to them pursuant to this section. Any Project Coordinator who disputes a specific statement shall clearly set forth:

1) the basis for disputing such statement;

2) his/her position with regard to the disputed statement;

3) the basis for concluding that his/her position on the dispute should be followed rather than the position of the other Project Coordinator(s).

C. If, within 7 days from the date of the submission of the reply/replies to the notice of dispute, the parties have not reconciled all issues raised in such notice, EPA shall present a written notice to the Del Amo Technical Work Group (TWG) setting forth all differences of opinion regarding the remaining issues of disagreement.

D. The Del Amo TWG will serve as a forum for resolution of dispute(s) for which agreement has not been reached through the dispute resolution process as set forth in Subsection A, B and C. The Parties shall each designate one individual, other than a Project Coordinator, to serve on the TWG. The purpose of the TWG is to foster discussions on matters that may arise during the conduct of the Work and resolve differences of opinion between the parties to this Consent Order. Following elevation of a dispute to the TWG, the TWG shall have 10 days to unanimously resolve the dispute and issue a written decision which will be final and binding on all Parties.

E. If the TWG is unable to unanimously resolve the dispute within this 10 day period, a written statement of dispute shall be prepared by the TWG which reflects all sides to the dispute. This written statement shall be forwarded to the Deputy Director for Superfund Programs for resolution within 7 days after the close of the 10 day TWG resolution period. The Deputy Director for Superfund Programs shall issue a written statement of his/her decision to Respondents.

F. Respondents shall then implement EPA's decision. The pendency of any dispute under this Section shall not affect any Party's responsibility for timely performance of the work required by this Consent Order. Use of the dispute resolution provision will not relieve Respondents' duty to complete unrelated

tasks in a timely manner in accordance with the applicable timetable, deadline or schedule.

G. Resolution of a dispute pursuant to this Section of the Consent Order constitutes a final resolution of any dispute arising under this Consent Order. All Parties shall abide by all terms and conditions of any final resolution of dispute obtained pursuant to this Section of this Consent Order. Parties shall implement the final decision accordingly. This dispute resolution provision or EPA's decision pursuant to this provision does not grant or imply jurisdiction to any court to review EPA's decisions pursuant to this Consent Order. All written notices and decisions generated pursuant to this Section of the Consent Order shall be part of the Administrative Record.

H. The invocation of dispute resolution does not stay stipulated penalties under this Consent Order.

XXI. STIPULATED PENALTIES

A. Except with respect to any extensions allowed by EPA in writing, or excused by the provisions of the Force Majeure Section of this Consent Order, Respondents shall be liable for stipulated penalties in accordance with Section XXI for each day that the Respondents fail to comply with the requirements of paragraphs C, D, and E of this Section.

B. Penalties shall accrue commencing upon the earliest of the following occurrences: Respondents' receipt of the written determination of disapproval, as specified in the Work To Be Performed Section of this Consent Order; the failure of Respondents to meet the schedule specified or modified by EPA in the SOW; unauthorized activity at the Site; failure to achieve any other requirement under this Consent Order; or Respondents' receipt of written notice from EPA that a violation of this Consent Order has occurred. The dollar amount specified for penalties are not subject to Dispute Resolution (Section XX). In the event Respondents invoke Dispute Resolution, Dispute Resolution shall not stay the accrual of these stipulated penalties. Penalties shall accrue from the date on which a violation of this Consent Order occurs and shall continue to accrue through the final day

of the noncompliance. Stipulated penalties shall be assessed in accordance with the schedules set forth below.

C. For purposes of this Consent Order only, Class I Noncompliance with the terms of this Consent Order shall be defined as the failure to submit to EPA Quarterly Progress Reports on-time or otherwise in compliance with the terms of the Consent Order.

D. For purposes of this Consent Order only, Class II Noncompliance, Class III Noncompliance, and Class IV Noncompliance with the terms of this Consent Order shall be defined as the failure to submit to EPA, on-time or otherwise in compliance with the terms of the Consent Order, those deliverables identified as Class II, Class III, and Class IV deliverables in the schedule (Attachment B) attached to the Statement of Work (Attachment A).

E. For purposes of this Consent Order, Class III noncompliance with the terms of this Consent Order shall also be defined as the failure to perform work agreed to in the RI/FS Statement Of Work, or additional work required pursuant to Section XI (Modification Of Statement of Work);

Amount of Stipulated Penalties by Class

F. Stipulated penalties shall be calculated according to the schedules below:

Class I Noncompliance Penalty Schedule

Period of Failure to Comply	Penalty per day per event
1st day and beyond	$1,000

Class II Noncompliance Penalty Schedule

Period of Failure to Comply	Penalty per day per event
1st through 7th day	$1,000
8th day and beyond	$2,500

Class III Noncompliance Penalty Schedule

Period of Failure to Comply	Penalty per day per event
1st through 7th day	$2,500
8th day and beyond	$5,000

Class IV Noncompliance Penalty Schedule

Period of Failure to Comply	Penalty per day per event
1st through 7th day	$5,000
8th day and beyond	$10,000

G. Respondents' payment of stipulated penalties shall be due within 20 days following demand by the Director, Hazardous Waste Management Division, U.S. EPA, Region 9, by certified check made payable to the United States Treasury and addressed to:

U.S. EPA
Region 9, Attn: Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA 15251

Respondents shall send a cover letter with any check and the letter shall identify the Site by name and make reference to this Consent Order. Respondent shall send simultaneously to the EPA Project Coordinator a notification of any penalty paid, including a photocopy of the check.

H. The stipulated penalties provisions do not preclude EPA from pursuing any other remedies or sanctions which are available to EPA because of Respondents' failure to comply with this Consent Order. EPA will not seek statutory penalties until it notifies Respondents of its decision to pursue statutory penalties or other remedies or sanctions.

I. Respondents are jointly and severally liable for the payment of stipulated penalties accruing under this Consent Order.

XXII. FORCE MAJEURE

A. If an event occurs which causes delay in the achievement of the requirements of this Consent Order, Respondents shall have the burden of proving that the delay was caused by circumstances beyond the control of Respondents, their contractors, and agents and that those circumstances cannot be overcome by their due diligence. Economic hardship, normal inclement weather, and increased costs of performance shall not be considered events beyond the control of Respondents, their contractors, and agents and shall not trigger the force majeure clause. In the event of a force majeure, the time for performance of the activity delayed by the force majeure shall be extended for the time period of the delay attributable to the force majeure. The time for performance of any activity dependent on the delayed activity may be similarly extended, except to the extent that the dependent activity can be implemented in a shorter time. EPA shall determine whether subsequent requirements are to be delayed and the time period granted for any delay. Respondents shall adopt all reasonable measures to avoid or minimize any delay caused by a force majeure.

B. When an event occurs or has occurred that may delay or prevent the performance of any obligation under this Consent Order which Respondents believe is due to force majeure, Respondents shall notify by telephone the EPA Project Coordinator, or, in his/her absence, the Director of the Hazardous Waste Management Division of EPA, Region 9, within 48 hours after the Respondents discovered or should have discovered the force majeure event. Oral notification shall be followed by written notification, made within seven days of when Respondents knew or should have known of the event causing the delay or anticipated delay.

The written notification shall fully describe: the reasons for the delay; the reasons the delay is beyond the control of Respondents, their contractors, and agents; the anticipated duration of the delay; actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to mitigate the effect of the delay;

and any aspects of the event which may cause or contribute to an endangerment to public health, welfare, or the environment.

C. Failure of Respondents to comply with the force major notice requirements will be deemed an automatic forfeiture of their right to request a delay.

D. If EPA and Respondents cannot agree that any delay in compliance with the requirements of this Consent Order has been or will be caused by the circumstances beyond the control of Respondents, their contractors, and agents, or on the duration of any delay necessitated by a force majeure event, the dispute shall be resolved according to the dispute resolution provisions of this Consent Order. Respondents shall have the burden of proving that the delay was caused by circumstances beyond the control of Respondents, their contractors, and agents; that reasonable measures were taken to avoid or minimize delay; and the necessity of the duration of the delay.

XXIII. REIMBURSEMENT OF PAST COSTS

A. United States' Past Response Costs

Within 45 days of the effective date of this Consent Order, Respondents shall remit a certified or cashiers check to EPA in the amount of $450,000 together with interest that has accrued thereon at the rate of interest specified for the Hazardous Substances Superfund under CERCLA Section 107(a), 42 U.S.C. §9607(a), for reimbursement toward past response costs incurred by EPA in responding to the conditions at the Del Amo Plant Site. Because of certain limitations in EPA's cost documentation system, all of EPA's past costs may not be represented in the above dollar figure. EPA reserves the right to provide documentation for, and request payment of, such costs at a later date. Costs incurred after October 31, 1991 will be included under this Consent Order as future response costs.

Checks should be made payable to the Hazardous Substances Superfund and should include the name of the site, the site identification number, and the title of this Consent Order. Checks should be forwarded to:

U.S. Environmental Protection Agency
Region 9, Attn: Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA 15251

A copy of the transmittal letter and a copy of the check shall be sent simultaneously to the EPA Project Coordinator.

EPA will provide Respondents with a copy of the EPA Cost Documentation Management System (CDMS) documentation (or its equivalent) that provides an accounting of its costs expended for the Site up to and including October 31, 1991 and will include indirect and interest cost calculations for this period. The Respondents reserve the right to pay EPA's past costs subject to a review of EPA's cost documentation and resort to dispute resolution to resolve disputed costs if any.

B. State Past Response Costs

Within 45 days of the effective date of this Consent Order, Respondents shall remit a certified or cashier's check to DTSC in the amount of $445,051.00 for past response costs and interest that have been incurred by DTSC and the California Hazardous Substances Account in overseeing Respondents' work and in responding to conditions at the Del Amo Plant site. Notwithstanding the provisions of Section XXV, this amount includes the sum total of the obligations of the Respondents for past costs incurred by DTSC with respect to the Site through December 31, 1991. Costs incurred after that date will be included under this Consent Order as future response costs.

DTSC reserves the right to seek recovery of the remaining unpaid portion of its past response costs and interest from potentially responsible parties other than the Respondents.

Checks should be made payable to the State Department of Toxic Substances Control, and should include the name of the site, the site identification number, the

operable unit, if any, and the title of this Consent Order. Respondents shall forward the checks to:

California Department of Toxics Substances Control
Attn: Accounting/Cost Recovery - Jeanne Derdowski
P.O. Box 806
Sacramento, CA 95812-0806

A copy of the transmittal letter and a copy of the check shall be sent simultaneously to the DTSC Project Coordinator and to Dennis A. Ragen, Deputy Attorney General, 110 West A Street, Suite 700, San Diego, CA 92101. The Respondents reserve the right to pay the portion of DTSC's past costs incurred during the period from September 30, 1991 through December 31, 1991 subject to a later review of DTSC's cost documentation for such period, and to resort to dispute resolution to resolve any disputes involving such portion of DTSC's costs.

XXIV. REIMBURSEMENT OF RESPONSE AND OVERSIGHT COSTS

A. United States' Response And Oversight Costs

Following the issuance of this Consent Order, EPA shall submit to the Respondents, no more than annually, an accounting of all response costs including oversight costs incurred by the U.S. Government with respect to this Site after October 31, 1991. Response costs may include, but are not limited to, costs incurred by the U.S. Government not inconsistent with the NCP in overseeing Respondents' implementation of the requirements of this Consent Order and activities performed by the government as part of the RI/FS and community relations, including any costs incurred while obtaining access.

Costs shall include all direct and indirect costs, including, but not limited to, time and travel costs of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, compliance monitoring; including the collection and analysis of split samples, inspection of RI/FS activities, site visits, discussions regarding disputes that may arise as a result of this Consent Order, review and approval or disposal of reports, costs of performing the baseline risk assessment, and costs of redoing any of Respondents' tasks as permitted pursuant to Section 107(a)(4)(a) of CERCLA. The EPA Cost Documentation

Management System (CDMS) documentation or its equivalent, shall serve as basis for payment demands.

Respondents shall, within 45 days of receipt of each accounting submitted by the EPA no more frequently than annually, remit a certified or cashier's check for the amount of those costs. Interest shall accrue from the date payment of a specified amount is demanded in writing; or the date of the expenditure which ever is later, pursuant to CERCLA §107(a)(4). The interest rate is the rate of interest on investments for the Hazardous Substances Superfund as specified in Section 107(a) of CERCLA, 42 U.S.C. §9607(a).

Checks should be made payable to the Hazardous Substances Superfund and should include the name of the site, the site identification number, the account number and the title of this Consent Order. Checks should be forwarded to:

U.S. Environmental Protection Agency
Region 9, Attn: Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA 15251

Copies of the transmittal letter and a copy of the check should be sent simultaneously to the EPA Project Coordinator.

Respondents agree to limit any disputes concerning costs to accounting errors and the appropriateness of the expenditures pursuant to the NCP. Respondents shall identify any contested costs and the basis of their objection. All undisputed costs shall be remitted by Respondents in accordance with the schedule set forth above. Disputed costs shall be paid by Respondents into an escrow account while the dispute is pending. Respondents bear the burden of establishing the inappropriateness of any expenditure, an EPA accounting error, or the inclusion of costs outside the scope of this Consent Order. The Respondents reserve the right to pay EPA's costs subject to a review of EPA's cost documentation and resort to dispute resolution to resolve disputed costs if any.

B. State's Response And Oversight Costs

Respondents shall reimburse the State of California Hazardous Substance Account for the response and oversight costs incurred by The State of California with respect to this Consent Order provided that such costs are not inconsistent with the NCP.

Following the issuance of this Consent Order, the State shall submit to the Respondents no more frequently than annually, an accounting of all response costs including oversight costs incurred by the State of California with respect to this Consent Order. Costs shall include all direct and indirect costs.

Respondents shall, within 45 days of receipt of each accounting, remit a certified or cashier's check for the amount of those costs. Interest shall accrue from the date payment of a specified amount is demanded in writing. The interest rate is the rate of interest on investments for the Hazardous Substances Superfund in Section 107(a) of CERCLA, 42 U.S.C. §9607(a).

Checks should be made payable to the State Department of Toxic Substances Control, and shall reference the "Del Amo Superfund Site," Respondents shall forward the certified or cashiers check(s) to:

California Department of Toxic Substances Control
Attn: Accounting/Cost Recovery - Jeanne Derdowski
P.O. Box 806
Sacramento, CA 95812-0806

A copy of the transmittal letter and a copy of the check shall be sent simultaneously to the State Project Coordinator and to Dennis A. Ragen, Deputy Attorney General, 110 West A Street, Suite 700, San Diego, CA 92101.

Respondents agree to limit any disputes concerning costs to accounting errors and the appropriateness of the expenditures pursuant to the NCP. Respondents shall identify any contested costs and the basis of their objection. All undisputed costs shall be remitted by Respondents in accordance with the schedule set forth above. Disputed costs shall be paid by Respondents into an escrow account while the dispute is pending. Respondents bear the burden of establishing the inappropriateness of any expenditures, a State accounting error or the inclusion of costs outside the scope of this Consent Order. The

Respondents reserve the right to pay DTSC's costs subject to a review of DTSC's cost documentation and resort to dispute resolution to resolve disputed costs if any.

XXV. RESERVATIONS OF RIGHTS AND REIMBURSEMENT OF OTHER COSTS

EPA reserves the right to bring an action against the Respondents under Section 107(a) of CERCLA, 42 U.S.C. §9607(a), for recovery of all response costs including oversight costs, incurred by the United States at the Site that are not reimbursed by the Respondents; any costs incurred in the event that EPA performs the RI/FS or any part thereof, and any future costs incurred by the United States in connection with response activities conducted under CERCLA at this site.

EPA reserves the right to bring an action against Respondents to enforce the past costs and response and oversight cost reimbursement requirements of this Consent Order, to collect stipulated penalties assessed pursuant to Section XXI of this Consent Order, and to seek penalties pursuant to Section 109 of CERCLA, 42 U.S.C. §9609, excluding those violations for which the EPA has received stipulated penalties.

DTSC reserves the right to bring an action against Respondents for the recovery of any future response costs, including oversight costs, incurred by DTSC with respect to the Del Amo Plant Site which are not reimbursed by Respondents. DTSC reserves the right to bring an action against Respondents to enforce the past costs and response and oversight cost reimbursement requirements of this Consent Order.

Except as expressly provided in this Consent Order, each party reserves all rights and defenses it may have. EPA reserves the right to take any enforcement action pursuant to CERCLA and/or any other legal authority, including the right to seek injunctive relief, monetary penalties, and punitive damages for any violation of law or this Consent Order. Nothing in this Consent Order shall affect EPA's removal authority or EPA's response or enforcement authorities including, but not limited to, the right to seek injunctive relief, stipulated penalties, statutory penalties, and/or punitive damages, excluding those violations for which the EPA has received stipulated penalties.

Respondents reserve all rights they may have to oppose and defend against such claims and actions and to assert any and all claims they may have against EPA and/or any person, or government agency. Respondents reserve any rights they may have to bring any action otherwise available against any person as defined in Section 101(21) of CERCLA. The execution and performance of this Consent Order is not an admission by any of the Respondents of any fact, conclusion or liability related to any issue dealt with in the Order. Each Respondent's performance under the Consent Order is undertaken without waiver of or prejudice to (1) Any claims or defenses that may be asserted in the event of future litigation about or related to the site, or (2) Any rights of contribution or indemnity against any person including other Respondents. Nor is the execution of the performance of the Consent Order an agreement by any Respondent to take any action at the site other than described in the Consent Order.

Respondents are not released from liability, if any, for any response actions beyond the scope of this Consent Order regarding removals, other operable units, remedial design/remedial action of this operable unit, or activities arising pursuant to Section 121(c) of CERCLA.

XXVI. OTHER CLAIMS

In entering into this Consent Order, Respondents waive any right to seek reimbursement under Section 106(b) of CERCLA; 42 U.S.C §9606(b). Respondents also waive any right to present any claim under Section 111 or 112 of CERCLA. This Consent Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA.

Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership, subsidiary or corporation not a signatory to this Consent Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, pollutants, or contaminants

found at, taken to, or taken from the Site. Respondents shall bear their own costs and attorneys' fees.

XXVII. INDEMNIFICATION

The Respondents agree to indemnify and hold the United States Government, DTSC, and their agencies, departments, agents, and employees harmless from acts or omissions or causes of action arising from or caused by the negligence or wrongful conduct of Respondents, their employees, agents, servants, receivers, successors, or assignees, in carrying out activities under this Consent Order. Neither EPA nor DTSC is a party in any contract involving the Respondents at the Site.

XXVIII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

The effective date of this Consent Order shall be the date it is signed by EPA.

This Consent Order may be amended by mutual agreement of EPA, DTSC and Respondents. Amendments shall be in writing and shall be effective when signed by EPA. EPA Project Coordinators do not have the authority to sign amendments to the Consent Order.

No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by the Respondents will be construed as relieving the Respondents of their obligation to obtain such formal approval as may be required by this Consent Order. Any deliverables, plans, technical memoranda, reports (other than progress reports), specifications, schedules and attachments required by this Consent Order are, upon approval by EPA, incorporated into this Consent Order.

XXIX. CONTRIBUTION PROTECTION

With regard to claims for contribution against Respondents for matters addressed in this Consent Order, parties hereto agree that the Respondents are entitled to such protection from contribution actions or claims as provided by CERCLA Section 113(f)(2), 42 U.S.C. §9613(f)(2). The Respondents, however, expressly disclaim the contribution protection of CERCLA §113(f)(2) as between each of the Respondents, but not as to non-settling parties.

XXX. TERMINATION AND SATISFACTION

The provisions of the Consent Order shall be deemed satisfied upon Respondents' receipt of written notice from EPA that Respondents have demonstrated, to the satisfaction of EPA, that all of the terms of this Consent Order, including any additional tasks which EPA has determined to be necessary, have been completed. Respondents may petition the EPA in writing for written determination. If the EPA does not respond to Respondents' request within forty-five (45) days after receipt, Respondents may invoke Section XX.

XXXI. DISCLAIMER

A. By entering into this Consent Order, or by taking any action in accordance with it, the Respondents do not admit any of the findings of fact, conclusions of law, determinations or any of the allegations contained in this Consent Order, nor do Respondents admit liability for any purpose or admit any issues of law or fact or any responsibility for the alleged release or threat of release of any hazardous substance into the environment. The participation of any Respondent in this Consent Order shall not be admissible against Respondents in any judicial or administrative proceeding, except for an action by EPA to enforce the terms of this Consent Order, or, actions to which EPA is a party, which allege injury based, in whole or part, on acts or admissions of Respondents in connection with performance under this Consent Order. However, the terms of this Consent Order and the participation of Respondents shall be admissible in any action brought by any Respondent to enforce any contractual obligation imposed by any agreement among them.

B. By signing and consenting to this Consent Order, or by taking any actions pursuant to this Consent Order, Respondents do not concede that the RI/FS, Focused FS, or any other investigation at the Site is necessary to protect the public health or welfare or the environment. Respondents have agreed to this Consent Order to provide assistance to EPA and the California Department of Toxic Substances and to avoid unnecessary conflict or litigation.

XXXII COUNTERPARTS

This Consent Order may be executed and delivered in any number of counterparts, each of which, when executed and delivered, shall be deemed to be an original, but such counterparts shall together constitute one and the same document.

IT IS SO AGREED AND ORDERED:

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

By: _____ Date: 5-7-92
Jeff Zelikson, Director
Hazardous Waste Management Division
U.S. Environmental Protection Agency, Region 9

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

By: _____ Date: _____
William F. Soo Hoo, Director
California Department of Toxic Substances Control

RESPONDENTS

By: _____ Date: _____
William J. Duchie
Manager-Environmental Remediation
West Coast, Corporate Environmental Affairs
Shell Oil Company

By: _____ Date: _____
J.M. Martin
Director of Environmental Affairs
Dow Chemical, USA

XXXII COUNTERPARTS

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IT IS SO AGREED AND ORDERED:

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

By: _____ Date: _____
Jeff Zelikson, Director
Hazardous Waste Management Division
U.S. Environmental Protection Agency, Region 9

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

By: William F. Soo Hoo Date: 5/6/92
William F. Soo Hoo, Director
California Department of Toxic Substances Control

RESPONDENTS

By: _____ Date: _____
William J. Duchie
Manager-Environmental Remediation
West Coast, Corporate Environmental Affairs
Shell Oil Company

By: _____ Date: _____
J.M. Martin
Director of Environmental Affairs
Dow Chemical, USA

XXXII COUNTERPARTS

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IT IS SO AGREED AND ORDERED:

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

By: _____ Date: _____
Jeff Zelikson, Director
Hazardous Waste Management Division
U.S. Environmental Protection Agency, Region 9

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

By: _____ Date: _____
William F. Soo Hoo, Director
California Department of Toxic Substances Control

RESPONDENTS

By: _____ Date: 4/27/92
William J. Duchie
Manager-Environmental Remediation
West Coast, Corporate Environmental Affairs
Shell Oil Company

By: _____ Date: _____
J.M. Martin
Director of Environmental Affairs
Dow Chemical, USA

XXXII COUNTERPARTS

This Consent Order may be executed and delivered in any number of counterparts, each of which, when executed and delivered, shall be deemed to be an original, but such counterparts shall together constitute one and the same document.

IT IS SO AGREED AND ORDERED:

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

By: _____ Date: _____
Jeff Zelikson, Director
Hazardous Waste Management Division
U.S. Environmental Protection Agency, Region 9

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

By: _____ Date: _____
William F. Soo Hoo, Director
California Department of Toxic Substances Control

RESPONDENTS

By: _____ Date: _____
William J. Duchie
Manager-Environmental Remediation
West Coast, Corporate Environmental Affairs
Shell Oil Company

By: J. M. Martin Date: May 6, 1992
J.M. Martin
Director of Environmental Affairs
Dow Chemical, USA

ATTACHMENT A - ADMINISTRATIVE ORDER ON CONSENT
STATEMENT OF WORK
RI/FS - DEL AMO PLANT SITE
FOCUSED FEASIBILITY STUDY - DEL AMO PIT SITE

INTRODUCTION

The purpose of this Statement of Work is to outline work to be conducted by the Respondents to an Administrative Order on Consent with the U.S. Environmental Protection Agency (EPA). This work pertains to two parallel track projects: (1) a Remedial Investigation/Feasibility Study (RI/FS) for the Del Amo Plant site and (2) a Focused Feasibility Study (FFS) for the Del Amo Pit site;. The boundaries of the Del Amo Plant site and the Del Amo Pit site are defined in Section V. "Findings of Fact" of the Administrative Order on Consent.

As described herein, the RI/FS for the Del Amo Plant site shall assess the nature and extent of soil and groundwater contamination at and emanating from the Del Amo Plant site and shall develop and evaluate potential remedial alternatives. The RI and FS for the Del Amo Plant site are interactive and may be conducted concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of Treatability Studies. Furthermore, it is anticipated that the RI for the Del Amo Plant site will be conducted as a phased program in order to more effectively focus the field work.

As described herein, the Focused Feasibility Study for the Del Amo Pit site shall incorporate the previous Feasibility Study conducted under a State Administrative Order, all EPA and State comments pertaining to this existing Feasibility Study, and additional Feasibility Study testing and Treatability Studies to be conducted.

The Respondents will conduct an RI/FS for the Del Amo Plant site (except for the Baseline Risk Assessment component), a Focused Feasibility Study for the Del Amo Pit site, and will produce certain documents that are in accordance with this Statement of Work, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988), and other guidance documents that EPA uses in conducting an RI/FS (a list of the primary guidance documents is attached), as well as additional requirements in report format and the required report content. The Respondents will furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS and the Focused Feasibility Study, except as otherwise specified in the EPA Administrative Order.

At the completion of the RI/FS and Focused Feasibility

Study, EPA will be responsible for the selection of a site remedy and will document this selection in a Record of Decision (ROD). Upon completion of the Focused Feasibility Study, EPA will select a remedy for the Del Amo Pit site. The RI/FS Report, Focused Feasibility Study Report, and EPA's Baseline Risk Assessment will, with the Administrative Record, form the basis for the selection of the remedy and will provide the information necessary to support the development of the ROD.

As specified in CERCLA Section 104(a)(1), as amended by SARA, EPA will provide oversight of the Respondent's activities throughout the RI/FS and Focused Feasibility Study. The Respondents will support EPA's initiation and conduct of activities related to the implementation of oversight activities.

The tasks to be performed for the RI/FS for the Del Amo Pit site and for the Focused Feasibility Study for the Del Amo Plant site are identified below. A schedule of deliverable dates (Attachment B) is also attached.

TASKS TO BE PERFORMED TOWARDS THE COMPLETION OF THE RI/FS FOR THE DEL AMO PLANT SITE

TASK 1A - SCOPING - RI/FS DEL AMO PLANT SITE (RI/FS Guidance, Chapter 2)

Scoping is performed during the initial planning process of the RI/FS. Scoping between the Respondents and EPA is continued, repeated as necessary, and refined throughout the RI/FS process. In addition to developing the site-specific objectives of the RI/FS, EPA will develop a general management approach for the site. Consistent with the general management approach, the specific project scope will be planned by the Respondents and EPA. The Respondents will document the specific project scope in the RI/FS Work Plan. Because the work required to perform an RI/FS is not fully known at the onset, and is phased in accordance with a site's complexity and the amount of available information, it may be necessary to modify the RI/FS Work Plan during the RI/FS to satisfy the objectives of the study.

The site objectives for the RI/FS for the Del Amo Plant site have been determined by EPA preliminarily, based on available information, to be the following:

1. Determine the nature and extent of and evaluate remedial alternatives for Non-Aqueous Phase Liquid (NAPL) at and emanating from the Del Amo Plant site. NAPL has been detected in an onsite monitoring well (MW20). The RI/FS shall investigate the source(s), nature, and horizontal and vertical extent of NAPL at and in the vicinity of MW20 as well as any other areas of NAPL that appear to be related to activities conducted at the Del Amo Plant site.

2. Determine the nature and extent of and evaluate remedial alternatives for vadose zone contamination (including soil and soil gas) beneath the Del Amo Plant site. During the operation of the former styrene, butadiene, and copolymer plants it is possible that contamination of the vadose zone occurred from spills, discharges, disposal practices, etc. The RI/FS shall identify, investigate and evaluate areas of soil and soil gas contamination within the Del Amo Plant site.

3. Determine nature and extent of and evaluate remedial alternatives for groundwater contamination at and emanating from the Del Amo Plant site. As a result of previous investigations, groundwater contamination is known to exist at the site. Additionally, the Montrose Chemical Company (Montrose) Superfund site, which is adjacent to the Del Amo Plant site, is known to have significant groundwater contamination. Contamination emanating from the Montrose site is known to have intermingled with groundwater contamination emanating from the Del Amo site. Furthermore, other sources of groundwater contamination may be present upgradient and downgradient from the Del Amo Plant site. Sufficient groundwater data must be collected to supplement the substantial groundwater data that has already been collected at the Montrose and Del Amo sites, and other neighboring facilities. The groundwater data collected must be sufficient to define the nature and extent of groundwater contamination at and emanating from the Del Amo Plant site, in up to four hydrogeologic units in the vicinity of the site. These units have been recognized and named by investigators of the Montrose site as the Upper Bellflower Aquitard, Bellflower Sand, Gage Aquifer, and Lynwood Aquifer.

The FS must develop and evaluate alternatives for remediating groundwater contamination at and emanating from the site. Given the proximity to the Montrose site, and the fact that groundwater contaminant plumes from the two sites appear to overlap, the remedial alternatives must consider groundwater contamination associated with the Montrose site. The remedial alternatives developed and approved by EPA for the Montrose site and the Del Amo Plant site must be compatible.

4. Gather sufficient data to perform a Risk Assessment for the Del Amo Plant site. Sufficient information must be gathered during the Remedial Investigation so that EPA can conduct a Risk Assessment for the Del Amo Plant site, including a baseline public health assessment and an environmental assessment. An effort will be made to identify selected offsite areas that may have received runoff from the Del Amo Plant site. A limited number of surface soil samples will be collected from these areas, and will be submitted for laboratory testing for selected contaminants that are associated with the Del Amo Plant site.

The strategy for the general management of the Del Amo Plant

site will include the following:

In order to more efficiently collect data and to expedite the data collection process, it is expected that the RI will be conducted in a phased manner. The first phase of the RI will include investigation of known areas of groundwater contamination, as well as selected areas on the Del Amo Plant site that may represent significant sources of soil or groundwater contamination. These areas will be identified in the RI/FS Work Plan, based on existing analytical data and the results of aerial photographic analysis. The first phase of the RI will also include offsite groundwater investigations in selected areas to be identified in the RI/FS Work Plan. Subsequent phases will be performed as necessary to fill data gaps and allow refinement of data interpretations.

The general objectives of the first phase of the RI are indicated below:

- Investigation of areas of NAPL contamination, particularly in the vicinity of monitoring well MW20;
- Investigation of selected soil and soil gas contaminant sources within the boundaries of the Del Amo Plant site. This will include investigation in the vicinity of the Del Amo Pit site and other areas identified as potentially significant sources of contamination (as determined from aerial photographic analysis);
- Investigation of groundwater contamination at and emanating from the Del Amo Plant site within the Upper Bellflower Aquitard, Bellflower Sand, and Gage Aquifer. It is expected that approximately 15 to 20 monitoring wells will be installed in the Upper Bellflower Aquitard, and approximately 3-5 monitoring wells will be installed in each of the Bellflower Sand and Gage Aquifer units; and
- Investigation of offsite soil contamination by collecting a limited number of shallow soil samples from residential properties in the vicinity of the site from potential areas of surface water discharge from the site.

The general objectives of the second phase of the RI are indicated below:

- Additional soil and soil gas investigation within selected areas of the Del Amo Plant site, as necessary, to determine whether site-related contaminants are present (selected areas will be identified in the Phase II RI Work Plan, based on the findings of the Phase I RI field investigations and site history work);
- Additional groundwater investigation within the Upper Bellflower Aquitard, Bellflower Sand, Gage Aquifer, and

Lynwood Aquifer as necessary in order to refine identification of the nature and extent of groundwater contamination. It is expected that the number of wells within each of the recognized hydrogeologic units will be sufficient to identify the extent of groundwater contamination and characterize upgradient and downgradient water quality; and

- Additional offsite soil and soil gas sampling as necessary to define areas of offsite soil and soil gas contamination, related to past operations at the Del Amo Plant site.

It is also expected that groundwater treatability studies will be conducted as necessary during the RI/FS.

a. Site Background (2.2)

The Respondents will gather and analyze the existing site background information to assist in planning the scope of the RI/FS.

Collect and analyze existing data and document the need for additional data (2.2.2; 2.2.6; 2.2.7)

All existing site data will be thoroughly compiled and reviewed by the Respondents during Phase I of the RI, following approval of the RI/FS Work Plan. Specifically, this will include presently available data relating to the varieties and quantities of hazardous substances at the site, and past disposal practices. This will also include available data from previous sampling events that may have been conducted. Historical aerial photographs, plant documents, and plant personnel will also be consulted to determine the nature of activities at the site and potential areas of contamination. The Respondents will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources. This information will be utilized in determining additional data needed to characterize the site, define potential sources of contamination, better define potential applicable or relevant and appropriate requirements (ARARs), and develop a range of preliminarily identified remedial alternatives.

Data Quality Objectives (DQOs) will be provided by EPA. These DQOs will be incorporated into all subsequent deliverables produced by the Respondents.

At a minimum, the Respondents shall utilize information contained in the following documents for the scoping and site characterization task:

- Remedial Investigation Report, Del Amo Site, Los Angeles, CA (4/4/90);
- Draft Feasibility Study Report, Del Amo Site, Los Angeles, CA (12/19/90);
- Draft Feasibility Study Report, Del Amo Site, Los Angeles, CA (5/91);
- Baseline Risk Characterization, Del Amo Site, Los Angeles, CA (4/1/91);
- Phase 2A Groundwater, Soil, and Sampling Pan, Montrose Site, Torrance, CA (5/20/88);
- Quality Assurance Project Plan, Montrose Site, Torrance, CA (5/20/88);
- Regional Hydrogeologic Assessment Report, Montrose Site Torrance, CA (5/29/90);
- Draft Remedial Investigation Report, Montrose Site, Torrance, CA (10/31/90);
- Proposal to Perform Additional Groundwater Assessment, Montrose Site, Torrance, CA (11/30/90).

Respondents and EPA will work together to ensure that existing data which is utilized in the scoping and site characterization tasks, has been subjected to a thorough QA/QC review.

b. RI/FS Scoping Deliverables (2.3)

The Respondents shall submit a MW20 Vicinity NAPL Work Plan, RI/FS Work Plan, Sampling and Analysis Plan, and a Site Health and Safety Plan. The MW20 Vicinity NAPL Work Plan, RI/FS Work Plan and Sampling and Analysis Plan must be reviewed and approved by EPA prior to the initiation of field sampling activities.

MW20 Vicinity NAPL Work Plan

Within one month of the effective date of the Order, Respondents shall submit to EPA a MW20 Vicinity NAPL Work Plan, including a Sampling and Analysis Plan and Health and Safety Plan. If EPA disapproves of or requires revisions to the MW20 Vicinity NAPL Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised MW20 Vicinity NAPL Work Plan that is responsive to the EPA comments, within one month of receiving the comments.

Respondents will prepare a Work Plan, including a Sampling and Analysis Plan and Health and Safety Plan, for the investigation of the MW20 Vicinity NAPL. The purpose of this is to allow the investigation of the MW20 vicinity NAPL to begin and proceed as quickly as possible. These documents will meet the general requirements of the RI/FS Work Plan, Sampling and Analysis Plan and Health and Safety Plan as described below. The work described in the MW20 Vicinity Work Plan should be sufficient to identify the

horizontal and vertical extent of the NAPL, its chemical and physical properties of the NAPL, and potential sources of the NAPL contamination.

RI/FS Work Plan (2.3.1)

Within one and a half months of Respondents' receipt of the Preliminary Remediation Goals (PRGs) document (to be produced by EPA), Respondents shall submit to EPA a complete RI/FS Work Plan. If EPA disapproves of or requires revisions to the RI/FS Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised RI/FS Work Plan that is responsive to EPA comments, within one month of receiving the comments.

The RI/FS Work Plan should be developed in conjunction with the Sampling and Analysis Plan and the Site Health and Safety Plan, although each plan may be delivered under separate cover. The RI/FS Work Plan will include a comprehensive description of the work to be performed, including the methodologies to be utilized, and a corresponding schedule for completion. In addition, the RI/FS Work Plan must include the rationale for performing the required activities. Specifically, the RI/FS Work Plan will present a statement of the problem(s) and potential problem(s) posed by the site and the objectives of the RI/FS.

Furthermore, the RI/FS Work Plan will include a site background summary setting forth the site description including the geographic location of the site, and to the extent possible, a description of the site's physiography, hydrology, geology, demographics, ecological, cultural and natural resource features; a synopsis of the site history and a description of previous responses that have been conducted at the site by local, state, federal, or private parties; a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the site. The RI/FS Work Plan will recognize EPA's preparation of the Baseline Risk Assessment. In addition, the RI/FS Work Plan will include a description of the site management strategy outlined in this SOW; and a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives. The plan will reflect coordination with Treatability Study requirements. It will include a process for and manner of identifying Federal and State ARARs (chemical-specific, location-specific and action-specific).

Finally, the RI/FS Work Plan will include a detailed description of the tasks to be performed, information needed

for each task and for EPA's Baseline Risk Assessment, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. The RI/FS Work Plan will include a description of the deliverables set forth in the remainder of this Statement of Work; a schedule for each of the required activities which is consistent with the RI/FS guidance; and a project management plan, including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format and backup data management), quarterly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RI/FS. The Respondents will refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the required Work Plan.

Because of the unknown nature of the site and iterative nature of the RI/FS, additional data requirements and analyses may be identified by EPA and the Respondents throughout the RI/FS process. The Respondents will submit a technical memorandum documenting the need for additional data, and identifying the DQOs whenever such requirements are identified. The Respondents are responsible for fulfilling additional data and analysis needs consistent with the scope and objectives of this RI/FS.

RI/FS Sampling and Analysis Plan (2.3.2)

Within one and a half months of Respondents' receipt of the Preliminary Remediation Goals (PRGs) document (to be produced by EPA), Respondents shall submit to EPA the RI/FS Sampling and Analysis plan. This plan shall consist of a Field Sampling Plan (FSP) and a Quality Assurance Project Plan (QAPP), as described in the Statement of Work and appropriate guidance documents. If EPA disapproves of or requires revisions to the RI/FS Sampling and Analysis Plan, in whole or in part, Respondents shall amend and submit to EPA a revised RI/FS Sampling and Analysis Plan that is responsive to EPA comments, within one month of receiving the comments.

The Respondents will prepare an RI/FS Sampling and Analysis Plan (SAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The RI/FS SAP provides a mechanism for planning field activities. and consists of a field sampling plan (FSP) and a Quality Assurance Project Plan (QAPP).

The FSP will define in detail the sampling and data gathering methods that will be used during the RI/FS. It will include sampling objectives, general sample locations and

frequency, sampling equipment and procedures, and sample handling and analysis methods. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The DQOs will at a minimum reflect use of analytical methods to identify contamination that is of concern, and allow for remediation of contamination consistent with the levels for remedial action objectives identified in the proposed National Contingency Plan, pages 51425-26 and 51433 (December 21, 1988). In addition, the QAPP will address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications. Field personnel should be available for EPA QA/QC training and orientation where applicable.

In the QAPP, the Respondents will demonstrate that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the selected analytes in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the site by EPA. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at this site for the purposes proposed and QA/QC procedures approved by EPA will be used. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for EPA review and approval. EPA may require that the respondent submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications. The Respondents will allow EPA access to laboratory personnel, equipment and records for sample collection, transportation and analysis.

Site Health and Safety Plan (2.3.3)

Within one and a half months of Respondents' receipt of the Preliminary Remediation Goals (PRGs) document (to be produced by EPA), Respondents shall submit to EPA the Site Health and Safety Plan.

The Site Health and Safety Plan will be prepared in conformance with the Respondent's health and safety program, and in compliance with OSHA regulations and protocols. The Site Health and Safety Plan will include the eleven elements described in the RI/FS guidance document, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and site control. It should be noted that EPA does not "approve" the Respondent's Health and Safety Plan, but rather EPA reviews

it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment. If appropriate, subsequent Health and Safety Plans (HSPs) required under the Administrative Order (ie. RI/FS Treatability Study HSP, FFS HSP, etc.) may reference the Site Health and Safety Plan or may modify the original Site Health and Safety Plan.

Following approval by EPA, all work plans and sampling and analysis plans are incorporated by reference into the Administrative Order.

TASK 2A - SITE CHARACTERIZATION DEL AMO PLANT SITE (RI/FS Guidance, Chapter 3)

Following EPA approval or modification of the MW20 Vicinity NAPL Work Plan and the RI/FS Work Plan and Sampling and Analysis Plan, Respondents shall implement the provisions of these plans to characterize the site. Respondents shall document the results of these investigations in the following deliverables: a MW20 Vicinity NAPL Evaluation Report, Phase I Remedial Investigation report, Phase II RI Work Plan, and a Remedial Investigation report (Phase I and Phase II). As discussed previously, in order to improve the efficiency of and expedite the field sampling and analysis program, it is expected that the site characterization will be conducted in two phases.

The overall objective of site characterization is to describe areas of a site that may pose a threat to human health or the environment. This is accomplished by first determining a site's physiography, geology, and hydrology. Surface and subsurface pathways of migration will be defined. The Respondents will identify the sources of contamination and define the nature and extent of the contamination. Using this information, contaminant fate and transport will then be determined and projected.

During this phase of the RI, the MW20 Vicinity NAPL Work Plan, the RI/FS, the Work Plan and SAP, and the Site Health and Safety Plan are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. The Respondents will notify EPA at least two weeks in advance of the field work regarding the planned dates for field activities, including initiating sampling, installation and calibration of equipment, pump tests, initiation of laboratory testing, and other field investigation activities. The Respondents understand that the laboratory and type of laboratory analyses that will be utilized during site characterization must meet the specific QA/QC requirements and the DQOs of the site investigation as specified in the SAP. In addition to the deliverables below, the Respondents will provide Quarterly Progress Reports and participate in meetings at major points in the RI/FS. The Quarterly Progress Reports will include

a brief description of the following:

(1) Actions taken and deliverables submitted during the reporting period;
(2) Actions expected and deliverables planned for the next reporting period;
(3) A summary of laboratory data results obtained during the reporting period; and
(4) A description of all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated delays or problems.

The Respondents will include summary data tabulations of laboratory data received during the reporting period. Data that have not been subjected to complete validation by the Respondents, as specified in the SAP, will be identified as "Preliminary Data, Subject to Revision". In addition to the data submittals in the Quarterly Progress Reports, the Respondents will notify EPA of data received that may reflect unexpected conditions, or conditions that may have direct implications on the future direction and scope of the RI/FS.

a. Field Investigation (3.2)

The field investigation includes the gathering of data to define site physical characteristics, sources of contamination, and the nature and extent of contamination at the site. These activities will be performed by the Respondents in accordance with the MW20 Vicinity NAPL Work Plan and SAP and the RI/FS Work Plan and SAP. At a minimum, the field investigation shall address the following:

Implement and document field support activities (3.2.1)

The Respondents will initiate appropriate field support activities to allow for timely implementation of the MW20 Vicinity NAPL Work Plan and the RI/FS Work Plan and SAP. Field support activities may include obtaining access to the site, scheduling, and procuring equipment, office space, laboratory services, and/or contractors. The Respondents will notify EPA at least two weeks prior to initiating field support activities.

Investigate and define site physical characteristics (3.2.2)

The Respondents will collect data on the physical characteristics of the site and its surrounding areas including the physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sam-

pling efforts and will be utilized to define potential transport pathways and human receptor populations. In defining the site's physical characteristics, the Respondents will also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

Define sources of contamination (3.2.3)

The Respondents will locate sources of contamination associated with the Del Amo Plant site. The areal extent and depth of contamination will be determined. The physical characteristics and chemical constituents and their concentrations will be determined.

Defining the source of contamination will include analyzing the potential for contaminant mobility and persistence and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

Describe the nature and extent of contamination (3.2.4)

The Respondents will gather information to describe the nature and extent of contamination. To describe the nature and extent of contamination, the Respondents will utilize the information on site physical characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The Respondents will then implement a monitoring program and any study program identified in the RI/FS Work Plan and SAP, to investigate the migration of contaminants through the various media at the site. In addition, the Respondents will gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the approved RI/FS Work Plan. EPA will use the information on the nature and extent of contamination to determine the level of risk presented by the site. Respondents will use this information to help to determine aspects of the appropriate remedial action alternatives to be evaluated.

b. Data Analyses (3.4)

Evaluate site characteristics (3.4.1)

The Respondents will analyze and evaluate the data to describe: (1) site physical characteristics, (2) contaminant source characteristics, (3) nature and extent of contamination and (4) contaminant fate and transport. Results of the site physical characteristics, source

characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in the RI/FS Work Plan or a technical memorandum, prior to their use. Data and programming, together with a sensitivity analysis, will be included in the RI Report. The RI data shall be presented in a format (i.e., computer disc or equivalent) to facilitate EPA's preparation of the baseline risk assessment. The Respondents and EPA shall discuss, identify, and address any data gaps needed to complete the Baseline Risk Assessment. (See "Guidance for Data Usability in Risk Assessment OSWER Directive # 9285.7-05 - October 1990). Also, this evaluation shall provide any information relevant to site characteristics necessary for evaluation of the need for remedial action in the Baseline Risk Assessment and for the development and evaluation of remedial alternatives. Analyses of data collected for site characterization will meet the DQOs developed in the QA/QC plan stated in the SAP (or revised during the RI).

c. Data Management Procedures (3.5)

The Respondents will consistently document the quality and validity of field and laboratory data compiled during the RI.

Document field activities (3.5.1)

Information gathered during site characterization will be consistently documented and adequately recorded by the Respondents in well-maintained field logs and laboratory reports. The method(s) of documentation must be specified in the MW20 Vicinity NAPL Work Plan and the RI/FS Work Plan and/or the SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

Maintain sample management and tracking (3.5.2; 3.5.3)

The Respondents will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. Analytical results developed under the RI/FS Work Plan will not be included in any site characterization

reports unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, the Respondents will establish a data security system to safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documentation.

d. Site Characterization Deliverables (3.7)

The Respondents will prepare the MW20 Vicinity NAPL Evaluation Report, Phase I Remedial Investigation Database, Phase I Remedial Investigation report, Phase II Work Plan, Remedial Investigation Database, and the Remedial Investigation Report.

MW20 Vicinity NAPL Evaluation Report

Within four months of EPA approval of the MW20 Vicinity NAPL Work Plan, Respondents shall submit a MW20 Vicinity NAPL Evaluation Report to EPA. EPA comments on this document will be incorporated into the Phase I Remedial Investigation Report.

The MW20 Vicinity NAPL Evaluation report which summarizes the investigative activities pertaining to the MW20 Vicinity NAPL investigation, presents results of sampling and analyses performed, identifies the horizontal and vertical extent of the NAPL, and identifies possible sources of the MW20 Vicinity NAPL contamination. The possible sources of the NAPL contamination will be further investigated during the RI.

Phase I Remedial Investigation Database

Within eight months of EPA approval of the RI/FS Work Plan, Respondents shall submit a Phase I Remedial Investigation Database to EPA.

This database shall contain the results of all sampling and analysis conducted during Phase I of the Remedial Investigation. EPA will provide written instructions regarding the required format and content of this database in the DQOs Report.

Phase I Remedial Investigation Report (3.7.2)

Within nine months of EPA approval of the RI/FS Work Plan, Respondents shall submit a Phase I Remedial Investigation Report to EPA. EPA comments pertaining to this document will be incorporated into the Draft Remedial Investigation Report.

The Phase I Remedial Investigation Report will review the investigative activities that have taken place, and describe

and display site data documenting the location and characteristics of surface and subsurface features and contamination at the site including the affected medium, location, types, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The Phase I Remedial Investigation report will provide EPA with a preliminary reference for developing the Risk Assessment, evaluating the development and screening of remedial alternatives, and the refinement and identification of ARARs.

Phase II RI Work Plan

Within one month of Respondents' receipt of EPA comments pertaining to the Phase I Remedial Investigation Report, Respondents shall submit a Phase II RI Work Plan. If EPA disapproves of or requires revisions to the Phase II RI Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised Phase II RI Work Plan that is responsive to EPA comments, within one month of receiving the comments.

Based on the site objectives and general management strategy identified in this Statement of Work, the Phase I Remedial Investigation report, and comments provided by EPA, the Respondents will prepare a revised Phase II RI Work Plan. This work plan will be consistent with the RI/FS Work Plan described in Task 1A. The Phase II RI/FS Work Plan will identify additional data to be collected under the second phase of the Remedial Investigation for the site.

Remedial Investigation Database

Within seven months of EPA approval of the Phase II RI Work Plan, Respondents shall submit a complete Remedial Investigation Database to EPA.

This database shall contain the results of all sampling and analysis conducted during the remedial investigation. EPA will provide written instructions regarding the required format and content of this database in the DQOs Report.

Remedial Investigation Report (3.7.3)

Within eight months of EPA approval of the Phase II RI Work Plan, Respondents shall submit a draft Remedial Investigation Report consistent with the Statement of Work, RI/FS Work Plan, Sampling and Analysis plan, and Phase II RI Work Plan. If EPA disapproves of or requires revisions to

the Remedial Investigation Report, in whole or in part, Respondents shall amend and submit to EPA a revised Remedial Investigation Report that is responsive to EPA comments, within one month of receiving the comments.

The draft Remedial Investigation Report shall summarize results of field activities to characterize the site (Phases I and II), sources of contamination, nature and extent of contamination and the fate and transport of contaminants. This report will address EPA comments regarding the MW20 Vicinity NAPL Evaluation Report, and Phase I Remedial Investigation report. The Respondents will refer to the RI/FS guidance document for an outline of the report format and contents.

TASK 3A - TREATABILITY STUDIES DEL AMO PLANT SITE (Rl/FS Guidance, Chapter 5)

Treatability studies may be performed by the Respondents to assist in the detailed analysis of alternatives. The following activities will be performed by the Respondents as part of the treatability studies for the Del Amo Plant site.

a. Determination of Candidate Technologies and of the Need for Testing (5.2; 5.4)

The Respondents will conduct a literature survey to identify practical candidate technologies which may be useful in addressing contamination at the Del Amo Plant site. The intent will be to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. For those candidate technologies which cannot be adequately evaluated for this site on the basis of available information, treatability testing will be considered. Where it is determined by EPA that treatability testing is appropriate, and unless the Respondents can demonstrate the studies are not needed, the Respondents will either submit a separate Treatability Study Work Plan or an amendment to the original RI/FS Work Plan for EPA review and approval.

Once a decision has been made to perform treatability studies, the Respondents and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible to minimize potential delays of the FS.

b. Treatability Testing and Deliverables (5.5; 5.6; 5.8)

The required treatability study deliverables are identified below. EPA will also require a Treatability Study Health and Safety plan, unless the Respondents show that the Site Health and Safety Plan is sufficient for purposes of conducting the treatability studies.

MW20 Vicinity NAPL Recovery and Disposition Treatability Study Work Plan (5.5)

Within one month of submittal of the MW20 NAPL Vicinity Evaluation Report, Respondents shall submit to EPA a MW20 Vicinity NAPL Recovery and Disposition Treatability Study Work Plan including a Sampling and Analysis Plan. If EPA disapproves of or requires revisions to the MW20 Vicinity NAPL Recovery and Disposition Treatability Study Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised MW20 Vicinity NAPL Recovery and Disposition Treatability Study Work Plan that addresses EPA comments, within one month of their receipt.

The MW20 Vicinity NAPL Recovery and Disposition Work Plan will address techniques to be tested for NAPL removal. It will include objectives for, and a description of testing for treatment and/or disposal techniques only if available literature and experience indicate that there is insufficient information available to evaluate the feasibility of these techniques for NAPL disposition. The work plan will include a description of the technology(ies) to be tested, test objectives, experimental procedures, conditions to be tested, measurements of performance, analytical methods, data management and analysis, and residual waste management. The DQOs for the MW20 Vicinity NAPL Recovery and Disposition Treatability Study should be documented as well.

If the original RI/FS SAP is not adequate for defining the activities to be performed during the MW20 Vicinity NAPL Recovery and Disposition Treatability Study, a treatability study SAP or amendment to the original site SAP will be prepared by the Respondents for EPA review and approval. If the Site Health and Safety Plan is not adequate for defining the activities to be performed during the treatability study, a separate or amended health and safety plan will be developed by the Respondents. EPA does not "approve" the treatability study health and safety plan.

MW20 Vicinity NAPL Recovery and Disposition Treatability Study Evaluation Report (5.6)

Within two months EPA approval of the MW20 Vicinity NAPL Recovery and Disposition Treatability Study Work Plan, Respondents shall submit a MW20 Vicinity NAPL Recovery and

Disposition Treatability Study Evaluation Report as provided in the Statement of Work and MW20 Vicinity NAPL Work Plan. Any EPA comments or required revisions regarding this document will be incorporated into the Draft Feasibility Study Report.

The MW20 Vicinity NAPL Recovery and Disposition Treatability Study Evaluation Report will evaluate the effectiveness, implementability, and cost of the removal technologies which have been tested. The report will also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

RI/FS Groundwater Treatability Study Work Plan (5.5)

Within two months of Respondents' receipt of EPA's comments pertaining to the Technical Memorandum on Identification and Screening of Technologies, Respondents shall submit an RI/FS Groundwater Treatability Study Work Plan, including a Sampling and Analysis Plan and Health and Safety Plan. The submittal of the RI/FS Groundwater Treatability Study Work Plan and the performance of associated work, is contingent upon identification of a need for such studies in the Technical Memorandum on Identification and Screening of Technologies. At this time, it is anticipated that such studies are necessary for groundwater, but not for soil. If EPA disapproves of or requires revisions to the RI/FS Groundwater Treatability Study Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised RI/FS Groundwater Treatability Study Work Plan that addresses EPA comments, within one month of their receipt.

The RI/FS Groundwater Treatability Study Work Plan will describe remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, and residual waste management. The DQOs for the RI/FS Groundwater Treatability Study should be documented as well.

If the original RI/FS SAP is not adequate for defining the activities to be performed during the RI/FS Groundwater Treatability Studies, a treatability study SAP or amendment to the original site SAP will be prepared by the Respondents for EPA review and approval. If the Site Health and Safety Plan is not adequate for defining the activities to be performed during the treatability studies, a separate or amended health and safety plan will be developed by the Respondents.

RI/FS Groundwater Treatability Study Evaluation Report (5.6)

Within seven months of EPA approval of the RI/FS Groundwater Treatability Study Work Plan, Respondents shall submit an RI/FS Groundwater Treatability Study Evaluation Report as provided in the Statement of Work and RI/FS Work Plan. Any EPA comments or required revisions regarding this document will be addressed in the Draft Feasibility Study Report.

The RI/FS Groundwater Treatability Study Evaluation Report will analyze and interpret the testing results, evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 4A - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES DEL AMO PLANT SITE (RI/FS Guidance, Chapter 4)

The development and screening of remedial alternatives will be performed to develop an appropriate range of waste management options. This range of alternatives will include as appropriate, options in which treatment is used to reduce the toxicity, mobility or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed by the Respondents as a function of the development and screening of remedial alternatives:

a. Development and Screening of Remedial Alternatives (4.2)

The Respondents will begin to develop and evaluate a range of appropriate waste management options that at a minimum ensure protection of human health and the environment, concurrent with the RI Site Characterization task.

Refine and Document Remedial Action Objectives (4.2.1)

The Respondents will review and if necessary modify the site-specific remedial action objectives that were established by EPA prior to or during negotiations between EPA and the Respondents. The revised remedial action objectives will be documented in a technical memorandum that will be reviewed and approved by EPA. These modified remedial action objectives will specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each exposure route).

Develop General Response Actions (4.2.2)

The Respondents will develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

Identify Areas or Volumes of Media (4.2.3)

The Respondents will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the site will also be taken into account.

Identify, screen, and document remedial technologies (4.2.4; 4.2.5)

The Respondents will identify and evaluate technologies applicable to each general response action. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types, or following the screening of the considered technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The technology types and process options which are retained will be summarized for inclusion in a technical memorandum. The reasons for eliminating technologies will be specified.

Assemble and Document Alternatives (4.2.6)

The Respondents will assemble selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives will represent a range of treatment and/or containment combinations that will address either the site or the operable unit as a whole. A summary of the assembled alternatives and their related ARARs will be prepared by the Respondents for inclusion in a technical memorandum. The reasons for eliminating alternatives during the preliminary screening process will be specified.

Refine Alternatives

The Respondents will refine the remedial alternatives to identify contaminant volume addressed by each alternative. Sufficient information will be collected for an adequate comparison of alternatives. Remedial action objectives for each chemical in each medium will also be modified as

necessary to incorporate any new risk assessment information presented in EPA's Baseline Risk Assessment report. Additionally, ARARs will be updated as the remedial alternatives are refined.

Conduct and Document Screening Evaluation of Each Alternative (4.3)

The Respondents may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. The reasons for eliminating alternatives from further consideration during screening will be specified. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable. This task shall include the identification of all chemical, action, and location specific ARARs.

b. Alternatives Development and Screening Deliverables (4.5)

The Respondents will prepare two technical memoranda summarizing the work performed in and the results of the tasks above. These will be modified by the Respondents if required by EPA's comments to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis. The following two technical memoranda will be prepared:

Technical Memorandum: Identification and Screening of Remedial Technologies.

Within one month of Respondents' receipt of the Chemicals of Concern Report (produced by EPA), Respondents shall submit a memorandum summarizing the identification and screening of remedial technologies which may be appropriate for remediation of the Del Amo Plant site. Any EPA comments or required revisions regarding this document will be addressed in the Memorandum on Development and Screening of Remedial Alternatives and the Draft Feasibility Study Report.

This memorandum will discuss and summarize the results of the following tasks which were identified above:

- Refine and Document Remedial Action Objectives,
- Develop General Response Actions,
- Identify, Screen and Document Remedial Technologies.

Technical Memorandum: Development and Screening of Remedial Alternatives.

Within two months of Respondent's receipt of the draft Risk Assessment report, Respondents shall submit a memorandum summarizing the development and screening of remedial alternatives which may be appropriate for remediation of the Del Amo Plant site. Any EPA comments or required revisions regarding this document will be addressed in the Draft Feasibility Study Report.

This memorandum will discuss and summarize the results of the following tasks which were identified above:

- Identify Areas and/or Volumes of Media Requiring Remediation,
- Assemble and Document Alternatives,
- Refine Alternatives,
- Conduct and Document Screening Evaluation of Each Alternative.

TASK 5A - DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES DEL AMO PLANT SITE (RI/FS Guidance, Chapter 6)

The detailed analysis will be conducted by the Respondents to provide EPA with the information needed to allow for the selection of a site remedy. This analysis is the final task to be performed by the Respondents during the FS.

a. Detailed Analysis of Alternatives (6.2)

The Respondents will conduct a detailed analysis of alternatives which will consist of (1) an analysis of the ability of each alternative to satisfy a set of nine evaluation criteria and (2) a comparative analysis of all alternatives using the same evaluation criteria as a basis for comparison.

Apply nine criteria and document analysis (6.2.1 - 6.2.4)

The Respondents will apply nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance. For each alternative the Respondents should provide: (1) a

description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative, and (2) a discussion of the evaluation which was conducted with individual criterion. If the Respondents do not have direct input on criteria (8) state (or support agency) acceptance and (9) community acceptance, they shall ask EPA for assistance.

Compare alternatives against each other and document the comparison of alternatives (6.2.5; 6.2.6)

The Respondents will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA.

b. Detailed Analysis Deliverables (6.5)

Feasibility Study report (6.5)

Within four months of Respondent's receipt of the draft Risk Assessment, Respondents shall submit a draft Feasibility Study Report which reflects the findings in the Remedial Investigation Report, RI/FS Groundwater Treatability Study Evaluation Report, and EPA's Baseline Risk Assessment Report. Respondents shall refer to Table 6-5 of the RI/FS guidance document for report content and format. If EPA disapproves of or requires revisions to the draft Feasibility Study Report in whole or in part, Respondents shall amend and submit to EPA a revised Feasibility Study Report which addresses EPA comments, within one month of their receipt. The report as amended, and the Administrative Record, shall provide the basis for the proposed remedial action plan under CERCLA §§ 113(k) and 117(a) by EPA, and shall document the development and analysis of remedial alternatives.

The draft FS Report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. The FS shall not label any of the alternatives as preferred or recommended. The Respondents will prepare a final FS report which satisfactorily addresses EPA's comments, within one month of their receipt.

TASK 6A - COMMUNITY RELATIONS

The development and implementation of community relations activities are the responsibility of EPA. The critical community relations planning steps performed by EPA include conducting community interviews and developing a community relations plan. Al-

though implementation of the community relations plan is the responsibility of EPA, the Respondents may assist by providing information regarding the site's history, participating in public meetings, or by preparing fact sheets for distribution to the general public. EPA will prepare two or more Baseline Risk Assessment memoranda which will summarize the toxicity assessment and exposure assessment components of the Baseline Risk Assessment. EPA will make these memoranda available to all interested parties for comment and place them in the Administrative Record. (EPA is not required, however, to formally respond to significant comments except during the formal public comment period on the proposed plan.) In addition, the Respondents may establish a community information repository, at or near the site, to house one copy of the Administrative Record.

TASKS TO BE PERFORMED TOWARDS THE COMPLETION OF FOCUSED FEASIBILITY STUDY FOR THE DEL AMO PIT SITE

TASK 1B - SCOPING - DEL AMO PIT SITE (RI/FS Guidance, Chapter 2)

Scoping is typically performed during the initial planning process of the RI/FS. Given that the RI for the Del Amo Pit site has been completed and that a draft FS report has been submitted in connection with the State Administrative Order, the scoping process for the Focused Feasibility Study (FFS) for the Del Amo Pit site will be relatively limited. As necessary, the scope of the FFS will be refined throughout the FFS process. Consistent with EPA site-specific objectives, the specific project scope will be planned by the Respondents and EPA. The Respondents will document the specific project scope in a FFS Work Plan. Subject to EPA approval, it is possible that some of the objectives described below could be incorporated into the RI/FS for the Del Amo Plant site.

EPA's site-specific objectives and strategy for the FFS for the Del Amo Pit site have been determined preliminarily, based on available information, to be the following:

1. Address EPA and Cal EPA comments on the existing FS report which was completed under the State Administrative Order.

2. Collect additional data that is required to properly characterize contamination at the Del Amo Pit site or to further identify the areas and volumes of contaminated media.

3. Reassess and refine volume calculations for waste and contaminated soil, as necessary.

4. Perform Treatability Studies, as appropriate, both in-situ (for contaminated soil) and ex-situ (for waste), to evaluate potential treatment technologies. Such potential candidate technologies may include, but are not limited to, Soil Vapor Extraction, Deep Soil Venting, and Bioremediation. It is expected that the treatability studies will be conducted in a phased manner and that the performance of successive treatability studies will be contingent upon the results of previous treatability studies.

   It is expected that the first phase of in-situ treatability studies, including soil vapor extraction and deep soil venting, will be initiated as soon as possible. The second phase of in-situ soil treatability studies, potentially including bioremediation, will be evaluated and performed only if it is deemed by EPA and the Respondents that the soil vapor extraction and deep soil venting treatability studies are unsuccessful and that these other technologies show some promise. Similarly ex-situ treatability studies, potentially including bioremediation, thermal distillation, and thermal desorption, will be performed only if it is deemed by EPA and the Respondents that excavation of waste is possible.

5. Perform a trial excavation to evaluate the feasibility of excavating waste and soil. The trial excavation will be conducted in a phased manner. A full-scale trial excavation will be conducted only if a trial excavation feasibility study (which will include emissions modeling, emissions impact characterization, and a small-scale trial excavation) indicates that a full-scale trial excavation is practical. The full-scale trial excavation would include extensive air monitoring prior to, during, and after the trial excavation.

a. Scoping Deliverables

FFS Work Plan.

Within two months of the effective date of this Order, Respondents shall submit to EPA a complete Focused Feasibility Study (FFS) Work Plan. If EPA disapproves of or requires revisions to the FFS Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised FFS Work Plan which addresses EPA comments, within one month of their receipt.

The FFS Work Plan should document the decisions and

evaluations made during the scoping process. The FFS Work Plan will include a comprehensive description of the work to be performed for the Del Amo Pit site, including the methodologies to be utilized, additional data to be collected, treatability studies and trial excavations to be performed, as well as a corresponding schedule for completion. In addition, the FFS Work Plan must include the rationale for performing the required activities. Specifically, the work plan will present a statement of the problem(s) and potential problem(s) posed by the site and the objectives of the FFS. In addition, the plan will include a description of the site management strategy outlined in this SOW and a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives. The plan will reflect coordination with FSS Treatability Study requirements. Finally, the FFS Work Plan will include a detailed description of the tasks to be performed, information needed for each task, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. This includes the deliverables set forth in the remainder of this Statement of Work; a schedule for each of the required activities which is consistent with the RI/FS guidance; and a project management plan, including a data management plan, quarterly reports to EPA, and meetings and presentations to EPA at the conclusion of each major phase of the FFS.

TASK 2B - FFS TREATABILITY STUDIES - DEL AMO PIT SITE (RI/FS Guidance, Chapter 5)

As outlined in Task 1B, FFS Treatability Studies will be performed by the Respondents to assist in the detailed analysis of alternatives. This work may include both in-situ and ex-situ treatability studies.

a. FFS Testing and Treatability Study Deliverables (5.5; 5.6; 5.8)

The deliverables that are required as part of the Treatability Studies which may be conducted during the Focused Feasibility Study for the Del Amo Pit site include the following:

FFS Treatability Study In-Situ Soils Phase I Work Plan (5.5)

Within two months of the effective date of this Order, Respondents shall submit an FFS Treatability Study In-Situ Soils Phase I Work Plan. This deliverable will be combined with the FFS Work Plan to form a single deliverable. If EPA disapproves of or requires revisions to the FFS Treatability Study In-Situ Soils Phase I Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised FFS

Treatability Study In-Situ Soils Phase I Work Plan which addresses EPA comments, within one month of their receipt.

The FFS Treatability In-Situ Soils Phase I Work Plan will describe the site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, and residual waste management. This document will be combined with the Focused Feasibility Study Work Plan described in Task 1B. The DQOs for Treatability Studies should be documented as well.

If the original RI/FS SAP is not adequate for defining the activities to be performed during the treatability studies, a separate treatability study SAP or amendment to the original site SAP will be prepared by the Respondents for EPA review and approval. If the Site Health and Safety Plan is not adequate for defining the activities to be performed during the treatability studies, a separate or amended health and safety plan will be developed by the Respondents.

FFS Treatability Study In-Situ Soils Phase I Evaluation Report (5.6)

Within four months of EPA approval of the FFS Treatability Study In-Situ Soils Phase I Work Plan, Respondents shall submit a FFS Treatability Study In-Situ Soils Phase I Evaluation Report as provided in the Statement of Work, FFS Work Plan, and FFS Treatability Study In-Situ Soils Phase I Work Plan. EPA comments concerning the FFS Treatability Study In-Situ Soils Phase I Evaluation Report shall be addressed in the draft FFS report.

The FFS Treatability Study In-Situ Soils Phase I Evaluation Report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

FFS Treatability Study In-Situ Soils Phase II Work Plan (5.5)

Within one month receipt of EPA comments pertaining to the In-Situ Soils Phase I Evaluation Report, Respondents shall submit an FFS Treatability Study In-Situ Soils Phase II Work Plan if the FFS Treatability Study In-Situ Soils Phase I indicate that the technologies tested are not feasible and that other promising in-situ technologies exist. If EPA

disapproves of or requires revisions to the FFS Treatability Study In-Situ Soils Phase II Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised FFS Treatability Study In-Situ Soils Phase II Work Plan which addresses EPA comments, within one month of their receipt.

The FFS Treatability In-Situ Soils Phase II Work Plan will describe the site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, and residual waste management. The DQOs for Treatability Studies should be documented as well.

If the original RI/FS SAP is not adequate for defining the activities to be performed during the treatability studies, a separate treatability study SAP or amendment to the original site SAP will be prepared by the Respondents for EPA review and approval. If the Site Health and Safety Plan is not adequate for defining the activities to be performed during the treatability studies, a separate or amended health and safety plan will be developed by the Respondents.

FFS Treatability Study In-Situ Soils Phase II Evaluation Report (5.6)

Within six months of EPA approval of the FFS Treatability Study In-Situ Soils Phase II Work Plan, Respondents shall submit a FFS Treatability Study In-Situ Soils Phase II Evaluation Report as provided in the Statement of Work, FFS Work Plan, and FFS Treatability Study In-Situ Soils Phase II Work Plan. EPA comments on the FFS Treatability Study In-Situ Soils Phase II Evaluation Report shall be addressed in the draft FFS report.

The FFS Treatability Study In-Situ Soils Phase II Evaluation Report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

FFS Treatability Study Ex-Situ Work Plan (5.5)

If the Trial Excavation FS Report concludes that waste excavation is practical, the Respondents will prepare an FFS Treatability Study Ex-Situ Work Plan for EPA review and approval. The FFS Treatability Study Ex-Situ Work Plan will be combined with the Trial Excavation Work Plan to form a single deliverable. Refer to the Trial Excavation Work Plan discussion for a schedule for this deliverable. The FFS

Treatability Study Ex-Situ Work Plan will describe the site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, and residual waste management. The DQOs for Treatability Studies should be documented as well. If pilot scale Treatability Studies are to be performed, the work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, and a sampling plan to determine pilot plant performance. If testing is to be performed off-site, permitting requirements will be addressed.

If the original RI/FS SAP is not adequate for defining the activities to be performed during the treatability studies, a separate treatability study SAP or amendment to the original site SAP will be prepared by the Respondents for EPA review and approval. If the Site Health and Safety Plan is not adequate for defining the activities to be performed during the treatability studies, a separate or amended health and safety plan will be developed by the Respondents.

FFS Treatability Study Ex-Situ Evaluation Report (5.6)

Within five months of EPA approval of the FFS Treatability Study Ex-Situ Work Plan, Respondents shall submit an Ex-Situ Treatability Study Evaluation Report as provided in the Statement of Work, FFS Work Plan, and Ex-Situ Treatability Study Work Plan. The FFS Treatability Study Ex-Situ Evaluation Report will analyze and interpret the testing results of Ex-Situ Treatability Studies in a technical report to EPA. The report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 3B - FFS TRIAL EXCAVATION - DEL AMO PIT SITE

Respondents shall conduct studies and field work, as appropriate, in order to evaluate the feasibility of excavating contaminated wastes and soil within disposal pits at the Del Amo Pit site. As outlined in Task 1B, a trial excavation will be conducted by the Respondents to assist in the detailed analysis of alternatives.

a. Trial Excavation Deliverables (5.5; 5.6; 5.8)

The deliverables that are required for the trial excavation performed as part of the Focused Feasibility Study for the Del Amo Pit site include the following:

Trial Excavation Feasibility Study Report

Within two months of EPA approval of the FFS Work Plan, the Respondents shall submit a Trial Excavation Feasibility Study Report. If EPA disapproves of or requires revisions to the Trial Excavation Feasibility Study Report in whole or in part, Respondents shall amend and submit to EPA a revised Trial Excavation Evaluation Report which addresses EPA comments, within one month of their receipt.

The Waste Excavation Feasibility Study will assess the feasibility of conducting a trial excavation and a full-scale excavation of contaminated waste at the Del Amo Pit site. It is generally expected that the Trial Excavation Feasibility study report will include the following:

- Evaluate potential waste excavation emissions. This will be accomplished by modeling and by performing a small-scale trial excavation;
- Evaluate the impact of uncontrolled and controlled emissions on workers and the public;
- Evaluate waste excavation emissions control technologies; and
- Evaluate permitting and regulatory strategy for waste excavation.

All work to be performed under this task will be described in the Focused Feasibility Study Work Plan. If the original RI/FS QAPP or FSP is not adequate for defining the activities to be performed during the trial excavation feasibility study, a separate SAP or amendment to the original site SAP will be prepared by the Respondents for EPA review and approval. If the Site Health and Safety Plan is not adequate for defining the activities to be performed during the trial excavation feasibility study, a separate or amended health and safety plan will be developed by the Respondents.

Trial Excavation Work Plan

Within two months of Respondents receipt EPA comments on the Trial Excavation Feasibility Study Report, Respondents shall submit a Trial Excavation Work Plan if the Trial Excavation Feasibility Study indicates that waste excavation is practical. The Trial Excavation Work Plan will be combined with the Ex-Situ Treatability Study Work Plan to form a single deliverable.

The Trial Excavation Work Plan will describe the work to be performed, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and

analysis, and residual waste management. The DQOs for the trial excavation should be documented as well. If the original RI/FS SAP is not adequate for defining the activities to be performed during the treatability studies, a separate treatability study SAP or amendment to the original site SAP will be prepared by the Respondents for EPA review and approval. If the Site Health and Safety Plan is not adequate for defining the activities to be performed during the treatability studies, a separate or amended health and safety plan will be developed by the Respondents. EPA does not "approve" the treatability study health and safety plan.

Trial Excavation Evaluation Report

Within five months of EPA approval of the Trial Excavation Work Plan, Respondents shall submit a Trial Excavation/Ex-Situ Treatability Study Evaluation Report as provided in the Statement of Work, FFS Work Plan, and Trial Excavation/Ex-Situ Treatability Study Work Plan. The submittal of the Trial Excavation Evaluation Report is contingent upon the decision to perform a trial excavation. If EPA disapproves of or requires revisions to the Trial Excavation Evaluation Report in whole or in part, Respondents shall amend and submit to EPA a revised Trial Excavation Evaluation Report which addresses EPA comments, within one month of their receipt.

The Trial Excavation Evaluation Report will analyze and interpret the testing results, evaluate the technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 4B - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES DEL AMO PIT SITE (Rl/FS Guidance, Chapter 4)

The development and screening of remedial alternatives for the FFS for the Del Amo Pit site shall be performed consistent with the manner described for the RI/FS for the Del Amo Plant site. The purpose of the development and screening of remedial alternatives for the Del Amo Pit site is to develop an appropriate range of waste management options for waste and soil in the pit area. The range of alternatives should include as appropriate, options in which treatment is used to reduce the toxicity, mobility or volume of contaminants, but varying in the types of treatment, the amount treated, and the manner in which long- term residuals or untreated contaminants are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action

alternative.

The Respondents will prepare two technical memoranda summarizing the work performed in and the results of the tasks above. These will be modified by the Respondents if required by EPA's comments to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis.

a. Deliverables

Technical Memorandum: Identification and Screening of Remedial Technologies.

Within one month of Respondents' receipt of EPA comments pertaining to the FFS Treatability Study In-Situ Phase I Soils Evaluation Report, Respondents shall submit a memorandum summarizing the identification and screening of remedial technologies as described in the Statement of Work. Any EPA comments or required revisions pertaining to this document, shall be addressed in the draft FFS report.

This memorandum will discuss and summarize the results of the following tasks:

- Refine and Document Remedial Action Objectives,
- Develop General Response Actions,
- Identify, Screen and Document Remedial Technologies.

Technical Memorandum: Development and Screening of Remedial Alternatives.

Within one month of Respondent's receipt of EPA comments on the draft Trial Excavation Evaluation Report, Respondents shall submit a memorandum summarizing the development and screening of remedial alternatives as described in this Statement of Work. Alternatively, if the In-Situ Phase I Treatability Studies are determined to be successful and waste excavation is determined not to be practical, this deliverable shall be due two months after Respondents' receipt of EPA comments pertaining to the In-Situ Phase I Treatability Study Evaluation Report. Any EPA comments or required revisions pertaining to this document, shall be addressed in the draft FFS report.

This memorandum will discuss and summarize the results of the following tasks:

- Identify Areas and/or Volumes of Media Requiring Remediation,
- Assemble and Document Alternatives,
- Refine Alternatives,

- Conduct and Document Screening Evaluation of Each Alternative.

TASK 5B - DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES - DEL AMO PIT SITE (RI/FS Guidance, Chapter 6)

The detailed analysis will be conducted by the Respondents to provide EPA with the information needed to allow for the selection of a remedy for waste and soil within the Del Amo Pit site. This analysis shall be consistent with that described in this Statement of Work for the Del Amo Plant site. The deliverables under this task will include a draft and final Focused Feasibility Study Report.

a. Deliverables

Draft Focused Feasibility Study Report

Within two months of Respondents' receipt of EPA comments on the Memorandum: Development and Screening of Alternatives, Respondents shall submit a draft FFS report which reflects the findings of the FFS Treatability Studies, FFS Trial Excavation Feasibility Study, FFS Trial Excavation Evaluation Report (if prepared), Technical Memoranda, and existing data pertaining to the Del Amo Pit site. Respondents shall refer to Table 6-5 of the RI/FS Guidance for report content and format. If EPA disapproves of or requires revisions to the draft FFS report in whole or in part, Respondents shall amend and submit to EPA a revised FFS report which addresses EPA comments, within two months of their receipt. The report as amended, and the Administrative Record, shall provide the basis for the proposed remedial action plan under CERCLA §§ 113(k) and 117(a) by EPA, and shall document the development and analysis of remedial alternatives.

The FFS report should incorporate results of the draft FS previously completed under the State Order, address EPA and State comments pertaining to that document, the results of additional FFS Treatability Studies and Trial Excavations performed as per this Statement of Work, and EPA comments pertaining to Treatability Study and Trial Excavation Evaluation deliverables and Technical Memoranda deliverables. The Respondents will refer to the RI/FS Guidance for an outline of the report format and the required report content. The Respondents will prepare a final FFS report which satisfactorily addresses EPA's comments on the draft FFS report.

REFERENCES FOR CITATION

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

The (revised) National Contingency Plan.

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01.

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3.

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA,.Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.

"Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

"Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.

"Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

"Users Guide to the EPA Contract Laboratory Program," U.S. EPA, Sample Management Office, August 1982.

"Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Preparing Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.3-02

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part A)," December 1989, EPA/540/1-89/002.

"Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual," March 1989, EPA/540/1-89/001.

"Guidance for Data Usability in Risk Assessment," October, 1990, EPA/540/G-90/008.

"Performance of Risk Assessments in Remedial Investigation /Feasibility Studies (RI/FS) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No. 9835.15.

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.030.

"Health and Safety Requirements of Employees Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 CFR 1910.120 (Federal Register 45654, December 19, 1986).

"Interim Guidance on Administrative Records for Selection of CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

"Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.03B.

"Community Relations During Enforcement Activities And Development of the Administrative Record," U.S. EPA, Office of Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1A.

ATTACHMENT B - SCHEDULE OF DELIVERABLES ADMINISTRATIVE ORDER ON CONSENT - DEL AMO PLANT SITE				
TASK	**STIPULATED PENALTY CLASS+**	**TRIGGER EVENT**	**DURATION FROM TRIGGER EVENT**	**CUMULATIVE TIME, POST ORDER**
NAPL INVESTIGATION				
Draft MW20 NAPL Work Plan (SAP & HSP)	II	Order	1 month	1 month
Final MW20 NAPL Work Plan	II	EPA Comments	1	3
MW20 NAPL Evaluation Report	IV	NAPL Work Plan Approval	4	7
Draft MW20 NAPL Recovery and Disposition Treatability Study Work Plan	II	NAPL Evaluation Report	1	8
Final MW20 NAPL Recovery and Disposition Treatability Study Work Plan	II	EPA Comments	1	10
MW20 NAPL Removal and Disposition Treatability Study Evaluation Report	IV	NAPL Treatability Study Work Plan Approval	2	12
REMEDIAL INVESTIGATION				
RI/FS Work Plan Sampling and Analysis Plan Health and Safety Plan	II	Respondents' Receipt of Exposure Assumptions Report	1.5	3
Final RI/FS Work Plan	II	EPA Comments	1	5
Phase I RI Database	IV	RI/FS Work Plan Approv.	8	13
Phase I RI Report	IV	RI/FS Work Plan Approv.	9	14
Draft Phase II RI Work Plan	II	EPA Comments Phase I RI Report	1	16
Final Phase II RI Work Plan	II	EPA Comments	1	18
RI Database	IV	Phase II Work Plan Approval	7	25

ATTACHMENT B - SCHEDULE OF DELIVERABLES ADMINISTRATIVE ORDER ON CONSENT - DEL AMO PLANT SITE				
TASK	**STIPULATED PENALTY CLASS+**	**TRIGGER EVENT**	**DURATION FROM TRIGGER EVENT**	**CUMULATIVE TIME, POST ORDER**
Draft RI Report	IV	Phase II Work Plan	8	26
Final RI Report	III	EPA Comments	1	28
FEASIBILITY STUDY				
Tech Memo - ID/Screening of Technologies	III	Respondent Receipt of Chemicals of Concern Report	1	15
Draft Groundwater Treatability Study Work Plan (SAP & HSP)*	II	Order	2	18
Final Groundwater Treatability Study Work Plan*	II	EPA Comments	1	20
Groundwater Treatability Study Evaluation Report*	III	Groundwater Treat-ability Study Work Plan Approval	7	27
Tech Memo - Screening of Alternatives	III	Respond. Receipt Draft Risk Assessment Report	2	29
Draft FS Report	IV	Draft Risk Assess.	4	31
Final FS Report	III	EPA Comments	1	33
FOCUSED FEASIBILITY STUDY				
Draft FFS/In-Situ Soils Phase I Treatability Study Work Plan	II	Order	2	2
Final FFS/In-Situ Soils Phase I Treatability Study Work Plan	II	EPA Comments	1	4
Treatability Study In-Situ Soils Phase I Evaluation Report	III	In-Situ Phase I Work Plan Approval	4	8
Draft Treatability Study In-Situ Soils Phase II Work Plan (SAP & HSP)**	II	EPA Comments - In-Situ Phase I Evaluation Report	1	10

ATTACHMENT B - SCHEDULE OF DELIVERABLES ADMINISTRATIVE ORDER ON CONSENT - DEL AMO PLANT SITE				
TASK	**STIPULATED PENALTY CLASS+**	**TRIGGER EVENT**	**DURATION FROM TRIGGER EVENT**	**CUMULATIVE TIME, POST ORDER**
Final Treatability Study In-Situ Phase II Work Plan**	II	EPA Comments	1	12
Treatability Study In-Situ Soils Phase II Evaluation Report**	III	In-Situ Phase II Work Plan Approval	6	18
Draft Trial Excavation Feasibility Study Report	IV	FFS Work Plan Approval	2	6
Final Trial Excavation Feasibility Study Report	III	EPA Comments on Draft Trial Excavation FS	1	8
Tech Memo - Identification & Screening of Technologies	III	EPA Comments - In-Situ Phase I Eval. Report	1	10
Draft Trial Excavation/Ex-Situ Treatability Study Work Plan***	II	EPA Comments - Trial Excavation Feasibility Study	2	9
Final Trial Excavation/Ex-Situ Treatability Study Work Plan***	II	EPA Comments	1	11
Ex-Situ Treatability Study Evaluation Report***	III	Trial Excavation/Ex-Situ Treatability Study Work Plan Approval	5	16
Draft Trial Excavation Evaluation Report***	IV	Trial Excavation/Ex-Situ Treatability Study Work Plan Approval	5	16
Final Trial Excavation Evaluation Report***	III	EPA Comments on Draft Trial Excavation Evaluation Report	1	18
Tech Memo - Development/ Screening of Alternatives	III	EPA Comments, Trial Excavation Eval. Report (EPA Comments, In-Situ Phase I Eval. Report)	1 (2)	18 (11)